

Financing a sustainable future: The attitude of Dutch savers towards green saving products



Master Sustainable Business and innovation

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Abstract

To stay below the 2°C temperature rise agreed upon in the Paris Agreement, technological innovations need to be implemented regarding energy efficiency and the reduction of carbon emissions for example. To realize the implementation of these large projects, funds are needed. The savings market can potentially be a source of money to fund these projects. Statistics show that only a fraction of the Dutch population has its funds diversified in alternate saving products such as term deposits, next to their conventional saving account. This research will try to determine the attitude of the Dutch saver towards alternate saving products and specifically towards green saving products. Green saving products are saving products where the funds are invested exclusively in green projects that generate climate or other environmental benefits. This differs with conventional saving products where funds can be invested in anything (*including weapons and drugs e.g.*). By conducting a survey (*discrete choice*) among Dutch savers we identified the main product related factors for individuals to select green saving products (*Interest Rate, Investment Focus and Bank Reputation*). Demographic background identified non-product related attributes for respondents to select green saving products (*Educational Background, Financial Stability and Environmental Friendly View*). The intention to purchase or open a green saving account is present, but the actual behavior regarding green saving is lagging.

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Introduction

Concerns about the effects of global warming have raised interest in understanding the mechanisms of climate change. Awareness of the consequences grows, as more scientific papers about climate change are being published every year, and not only in environmentally aimed journals (Held & Soden, 2006; Kalnay et al., 1996). It is widely agreed that the impact of climate change needs to be put to an end and even needs to be reversed. Until now the effects of global warming already have left an impact on climate, ecology and communities around the world (Crespo et al., 2017). It will be a challenge for societies around the world to stay below the 2°C temperature rise above pre-industrial levels regarding the average global temperature, which is agreed upon in the Paris Agreement (Nieto, Carpintero, & Miguel, 2018).

One of the challenges is the energy transition towards a sustainable energy system which uses little to no fossil fuels to power our societies (Crespo et al., 2017). To change the energy system, a huge deployment of sustainable innovations is necessary, innovations to improve energy efficiency or reduce carbon emissions for example. Other challenges, such as the increasing food production to feed an increasing world population and a secure fresh water supply for everyone, also requires new technologies and innovations. Locally oriented challenges are also present; challenges such as urban water savings, decrease of greenhouse gas emissions and future city design to facilitate the rising urbanization rate (Sustainable Development Challenges, 2013).

For sustainable innovations to be realized, financial investments are required. The financial sector with their capital and investment capabilities can easily invest in sustainable innovations. To illustrate the possibilities; the total investments worldwide in renewable energy generation in 2016 was USD 297 billion, while the total investment in the energy sector worldwide in the same year was just over USD 1.7 trillion (WEI 2017, 2017). worldwide Gross Domestic Product (GDP) in 2016 was USD 75.641 trillion (The World Bank, 2017). This means that only 0.39% of all the money earned globally in 2016 has been invested in sustainable energy supply.

The financial sector could in theory, according to the numbers, finance at least a part of the transition towards a sustainable future. And as the financial system can give direction to the development in the real economy and thus has the potential to enforce the sustainability transition, however the general transition towards sustainability is lagging (WEI 2017, 2017). The problem is that the current financial systems and its regulations are not able to free up resources (UN Environment Inquiry, 2017). Society's infrastructure is designed in a way that it is difficult for new disruptive technologies to enter, e.g. for electric driven cars new loading stations need to be built, mechanics need to be re-educated, while for the combustion car the whole infrastructure is already in place such as the fueling stations and factories. This example is explanatory for how the market works, investors are less likely to invest in new types of cars and rather invest in projects that improve existing parts of the market for which they do not need newly build infrastructure, the market is boxed in and we see that this causes difficulty for new technologies to enter and we see similar effects in the financial market (Polzin et al., 2017).

Clients of the financial sector thus have an indirect influence on where their capital is being invested in, if we look at consumers of a bank. They can persuade their bank in what kind of projects their savings amount is invested in. If a client does not like what his bank is doing with his funds, he can easily change banks. However, various reports show that the saver is not aware what their capital is used for. According to the Central Bureau for Statistics, the Netherlands, a total of EUR 349.349.000.000 is saved in saving accounts by the Dutch population (CBS StatLine - Spaartegoeden, 2017), of which only EUR 51.526.000.000 (14.7%) is allocated in fixed term deposits. Term deposits are financial products of which

the funds are unavailable for the consumer during the term (e.g. 1 year), a deposit with a longer term offers usually a higher interest percentage but can be better used by the bank¹. This means that most of the saved funds (85.3%) are dormant. These funds are unrestricted and can therefore not be used for long term investments such as energy transition related technologies. Because unrestrictive funds cannot be used and invested by the bank, lower interest rates are offered on unrestricted saving accounts relative to term deposits.

Considering that a large portion of the population's savings amount is dormant, this capital can be used to generate more impact by allocating these funds into financial products that supports sustainability aimed projects. These kinds of products do already exist; green Saving Products. A Green Saving Product is a relatively new financial product where the funds are invested exclusively in green projects that generate climate or other environmental benefits for example in renewable energy, energy efficiency, sustainable water management, sustainable land use, biodiversity, clean transportation and clean water (UNDP, 2017). Where the invested capital of a traditional saving products can be used for anything the investors are in agreement with. The question is how to move the huge amount of capital from the saving accounts to more useful financial products or in other words; what threshold is there to overcome for conventional savers to allocate their savings to financial products where they can have a positive impact on society and to make them aware of this potential.

¹ See appendix F for a more elaborative definition on (Fixed-) Term Deposits

Outline

This paper began by introducing the current situation regarding the saving behavior of individuals and how dormant saving funds could help the transition towards a sustainable future. In the next section this paper continues to elaborate on the problem definition where we expose the underlying facts regarding this situation and explain situation where green products are aiding in the beforementioned transition. The literature gap is also elaborated on in the following chapter from where we continue to introduce the research question that this paper will try to answer.

Scaling down and specifying the research topic further, following the research question an in-depth literature review is written down in which we explain the fundamental theories of human behavior, environmental behavior and the reasoning of consuming. These theories are used to propose a theoretical framework regarding green saving that this research will use and related to the proposed framework hypotheses are formulated.

In the methodology section we explain how we conducted our research and how data is gathered to answer our research question by examining each hypothesis in the results section.

The paper continues with a conclusion section, where the outcome is viewed from a broader perspective as well. And a discussion section where we expose the limitation of this research and its outcome. At the end we conclude with a reference list and the appendix in which used concepts are more extensively explained.

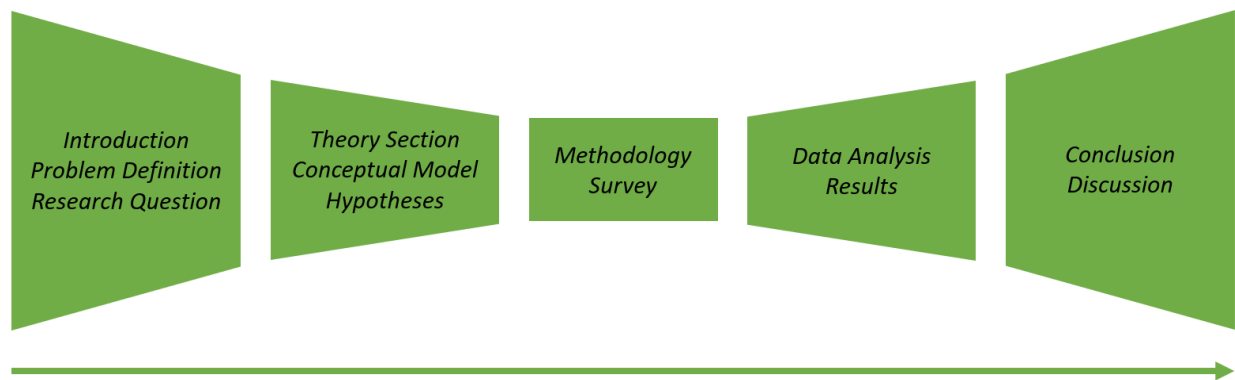


Figure 1: Paper outline; from a broad perspective we initiate with the situation in the savings market and define the problem. This results in the research question. Continuing in the theory section we specify further into the topic and propose a conceptual model that will be used for this research. Hypotheses are developed and with the conceptual model in mind we elaborate in the methodology section how we executed the survey and planned analysis. The outcome of the survey will be analyzed and described in the results section. With the outcome we can draw conclusions and place this back in a broader perspective we started with in the discussion section at the end of the paper.

Problem Definition

In the introduction the potential influence of savers has been introduced, however according to Dutch national statistics savers are investing their savings in fixed term deposit where the capital might have a larger impact. However, the actual investment of the consumers in such products and hence a positive impact of their savings capital is lacking. Consumers are not investing their capital. If they do, it is often not in green investments. The savings market does however notice the presence of green investments possibilities. New types of green bonds are available and a more diverse pool of issuers and investors has driven this rise in green bonds issuances and the green bonds annual issuance is growing (see figure 2) (UN Environment Inquiry, 2017).

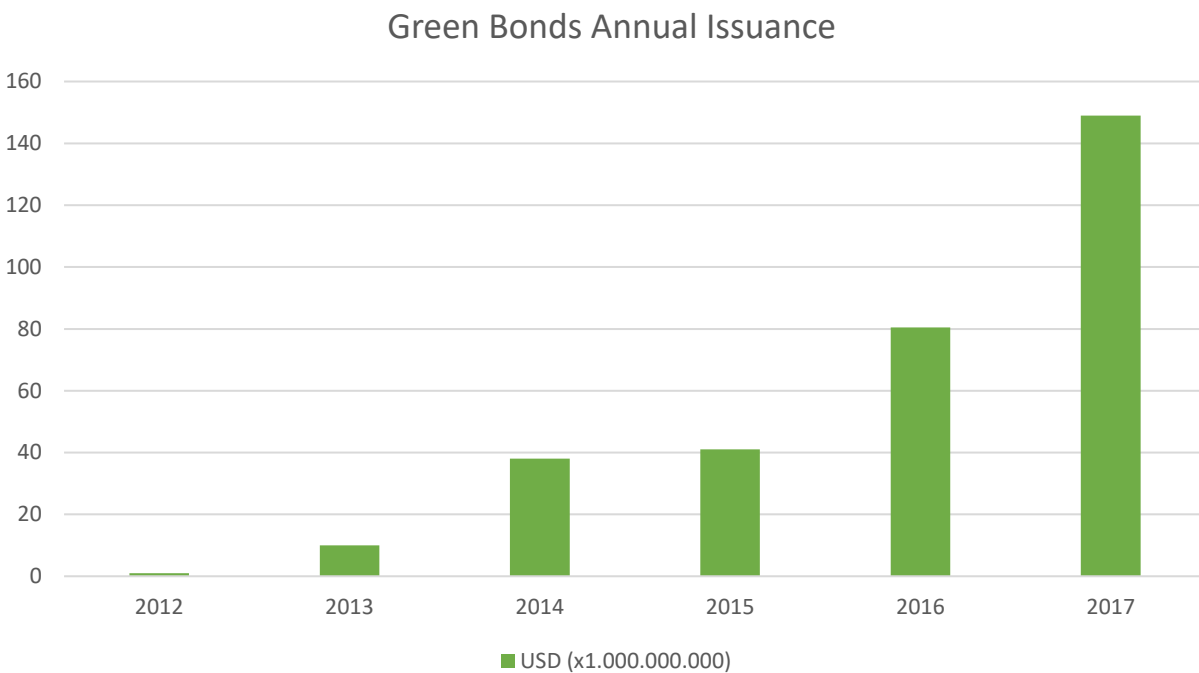


Figure 2: The annual issuance of green bonds worldwide is rising rapidly (UN Environment Inquiry, 2017).

A successful example is the recent issue of a green bond which TenneT has issued (*for the second time*). TenneT is an electricity transmission system operator located in the Netherlands and large parts of Germany. As a result, EUR 1.000.000.000 has been raised to be invested solely in offshore wind parks (TenneT, 2017). The rise in green bonds issuance is not an incident within the financial world. According to the Global Sustainable Investment Review (GSIA) report of 2016 sustainable, responsible and impact investment has grown absolutely and relatively compared to the total invested capital. Globally there are USD 22.89 trillion of assets, of which 64.4% is allocated in bonds, being professionally managed under responsible investment strategies. This is 26% of all professionally managed assets globally (GSIA, 2016). We must note though that most of these assets (USD 15 trillion) are defined as sustainably managed simply because their portfolio managers exclude funds of certain sectors, companies or practices based on specific environmental, social and governance (ESG) factors (GSIA, 2016). This means that the invested funds are not necessarily invested in green practices mentioned in the introduction (*environmental benefits e.g.*), but these assets are initially excluded from certain-non-green investments.

Dutch private investors, which is the fraction of the Dutch population that do invest next to having a savings account, only grew by 0.3 million households from 2013 to 2017. Similar growth rates are found in the rest of the world and if we compare this growth with the growth ratio of green bond issuances in the same period, one must conclude that the rise of issued green bonds is not caused by the injection of capital from new investors (TNS NIPO, 2017). The given dormant capital in the introduction of the Dutch population (*roughly EUR 300 billion*) of which, on average, 82% can be designated to non-investing households. Assuming an evenly spread of savings amount over all households in the Netherlands. 1.4 million households out of 7.8 million households (18%) do invest, in any form including green products, next to having a savings account. This means that 82% of the total savings account can be designated to non-investing households. This population is the aim of this research.

Banks and other financial institutions² continuously try to motivate conventional savers to make more use of their capital by investing a part of their total savings in for instance more interest gaining term deposits. Especially the capital that is situated in a conventional savings account. A direct call with a marketing director of a large Dutch broker and bank made this clear. They do see fluctuations in investing households, and with the current low interest rates more people are being encouraged to allocate their savings amount into other financial products. News of booming stock markets also are causes of a rise in private investors. However, following previous numbers we see that without any significant rise in private investors, more funds are allocated in green financial saving products from where the financial institute can invest the money in green saving products.

An initial literature research has shown that not much is to be found on the attitude³ of savers towards green saving, there is a lot written regarding the overall attitude and behavior towards conventional saving. In contrary, literature shows that the relationship between environmental attitude and ecological behavior is well explored, this relationship however appears to be at best moderate across different studies (Kaiser, Wölfing, & Fuhrer, 1999). More fundamental theories on consumer behavior is well researched as well, for example the theory of planned behavior which introduces how ones' behavior is influenced by his/her intention, self-efficacy and social environment (Ajzen, 1991); or consumer choice theory where consumers base their decisions regarding consuming on a tradeoff between supply and demand on the scale of the individual (Hüttel, Ziesemer, Peyer, & Balderjahn, 2018). The literature gap this research will try to cover is the consumers attitude towards green saving, all the individual attributes of the research topic has been scientifically well explored. But the research on consumer behavior regarding green saving is lacking. What this research will try to determine is how to motivate the other, larger part of the population to have more impact on the environment by allocating their funds in green term deposits and what thresholds are there to be removed for conventional savers to allocate their capital to financial products with more impact and what financial institutions can offer or already offering these savers to make them diversify their portfolio. Knowing these aspects of consumers attitude, decision makers in and around the financial sector can match these consumers desires with their financial products and remove barriers experienced by savers in order to increase green investing and thus help change customers attitude towards green investing.

² When the term financial institutions is used in this research, it will refer to institutions such as banks that offer savings products for consumers. See appendix C for a more elaborative definition.

³ The attitude is defined by the position of an individual to behave in a particular manner formed due to some topic related beliefs possessed by the individual (Garg & Singh, 2018). See appendix A.

Research Question

In the previous section a gap between the savings market and the financial institutions has been introduced regarding green saving products. From a customer's perspective; we want to identify the reason why they save and what drives savers from allocating funds in alternate green saving products. It will be interesting for the banks and fintech to prioritize the development of services that offer easy diversification aimed at green products for consumers. Therefore, more funds can be allocated which contributes to the development of a sustainable future (Nieto et al., 2018). Thus during this research, we will try to answer the following research question:

- *Which factors lead Dutch savers to invest their capital into 'green' saving products offered by banks?*

Initially, through a literature review, factors that determines consumer behavior regarding consuming products and ecological behavior will be assessed. With existing literature on green behavior and consuming habits, a conceptual model will be introduced. This model will be the framework of this research and parts of this framework will be investigated on by answer a few hypotheses that we will propose. In order to determine the attitude of the Dutch savers towards investing in green products, a survey will be conducted amongst a sample of the Dutch population drawn from the writer's personal and professional network as well as the network of Safened. Safened is the company at which this research will be conducted. Thereafter data will be analyzed and the results will be put into perspective towards the end of this paper.

Theoretical background

This research will encompass several main concepts that will be looked at. In this section, these main concepts will be explained in more depth. What fundamental theories are currently partly describing the reasoning of consumers regarding green savings product. Reasons for and against saving will be explained in order to indicate research variables. To conclude this section different financial products will be defined thereafter, this is necessary to make clear what the difference is between green products and non-green products and what their specific properties are.

Planned behavior

A fundamental concept regarding one's behavior and beliefs is proposed by Icek Ajzen and its paper to improve the predictive power of behavior. Since its proposition it has been applied to studies in various fields including advertising, public relations and also sustainability. Ajzen's model of human behavior is guided by three sorts of consideration; **(1)** 'attitude towards behavior', **(2)** 'subjective norm' and **(3)** 'perceived behavioral control'. The more favorable the attitude toward behavior and subjective norm, and a greater perceived behavioral control; will most probably result in a stronger person's intention to perform the related behavior. And finally; if the person holds sufficient control over the behavior, he/she is expected to carry out the intention if opportunity arises (Ajzen, 1991). This fundamental concept will be used later in this section to set up a conceptual model for this research regarding green saving products.

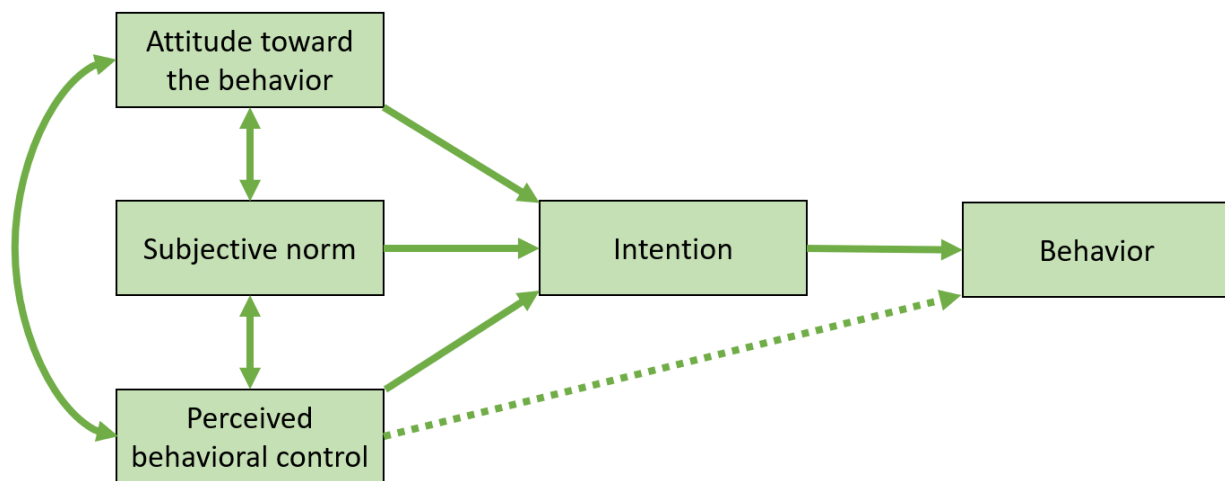


Figure 3: Theory of planned behavior. One's intention is influenced by: (1) attitude towards behavior; these are determined by the beliefs about the behavior of an individual, (2) subjective norm; these are perceptions on whether the behavior is expected by family, friends and society, (3) perceived behavioral control; which is the self-efficacy of the individual (Ajzen, 1991).

Ecological and environmental behavior

The theory of planned behavior is used as a theoretical framework to use in the ecological domain, how does this fit within environmental attitude and ecological behavior of an individual. Kaiser et al. (1999) identified two types of environmental attitude that are used to predict ecological behavior; **(1)** attitudes towards the environment and **(2)** attitudes towards ecological behavior. In order to make these attitudes fit in the theoretical framework of planned behavior it must consist of at least the following components; **(1)** factual knowledge of the environment which influences the attitude toward the behavior, **(2)** social

and moral values regarding the environment which influences the subjective norms and self-efficacy and (3) the ecological behavior intention. The same can be said regarding green saving products and the attitudes of the individual regarding green saving.

Environmental behavior is well-explored and in general the financial status, educational background and the national environmental and economic conditions are influencing the environmental behavior of the individual (Post & Meng, 2017). Research has found that individuals without a proper financial status and higher educational levels are more likely to prioritize economic growth over environmental health. This effect is in line with the expectation of human development (Inglehart & Welzel, 2005). This effect can be placed in the framework explained at the beginning of this paragraph, the factual knowledge, subjective norms and self-efficacy. And thus used to form our conceptual model.

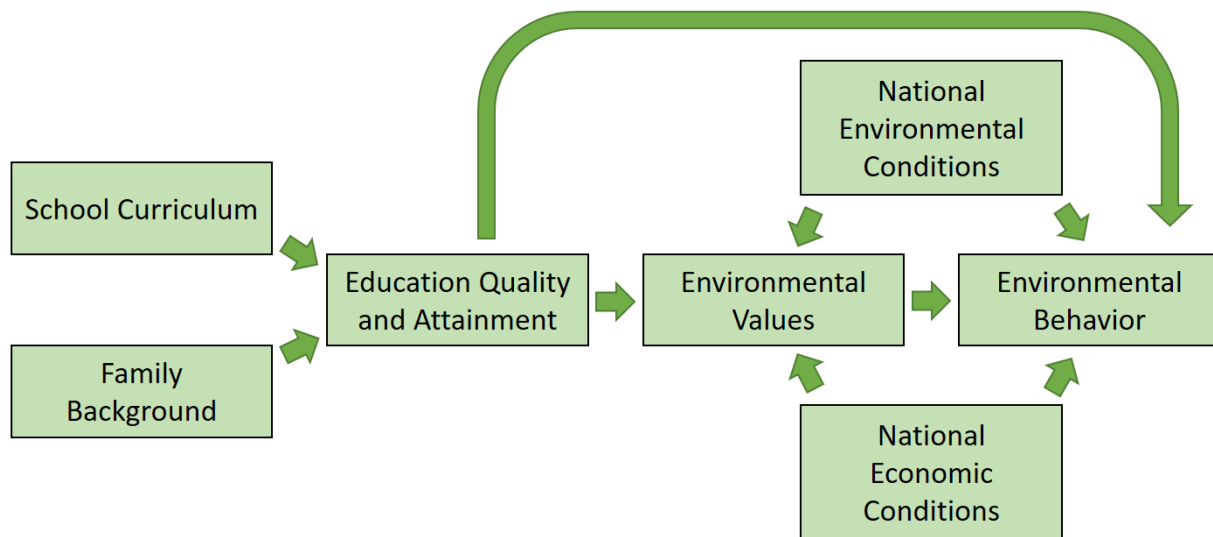


Figure 4: General theoretical model of education, environmental values and behavior (Post & Meng, 2017). It shows what factors are of influence on the behavior of an individual regarding sustainability. A proper financial background and environmental education indicates that an individual is more likely to consider environmental values in their decision making. Can the environmental behavior based on this model be incorporated within the consumer choice theory regarding green saving products.

Consumer Choice Theory

Another view on the attitude towards green saving products is the factor that such a product can be consumed. Consumers make consumptions every day, and having a saving account at a certain bank is one of them. The basis of making a decision involves the trade-off between making or abstaining from purchases (Hüttel et al., 2018). The consumer choice theory is the study that defines how individuals decide to spend their money, given their preferences and budget constraints. The consumer is assumed to have complete and transitive preferences and chooses the most preferred bundle from the affordable set of goods or services (Hands, 2010). The classical view on consumer choice is to analyze how consumers can maximize their consumption while limiting their expenditures; a trade of between supply (*goods and services offered*) and demand (*consumers' desirability*). It is primarily focused on the financial value of an individual, disregarding social and environmental values, unless these factors are incorporated in the preferences towards a product of the individual.

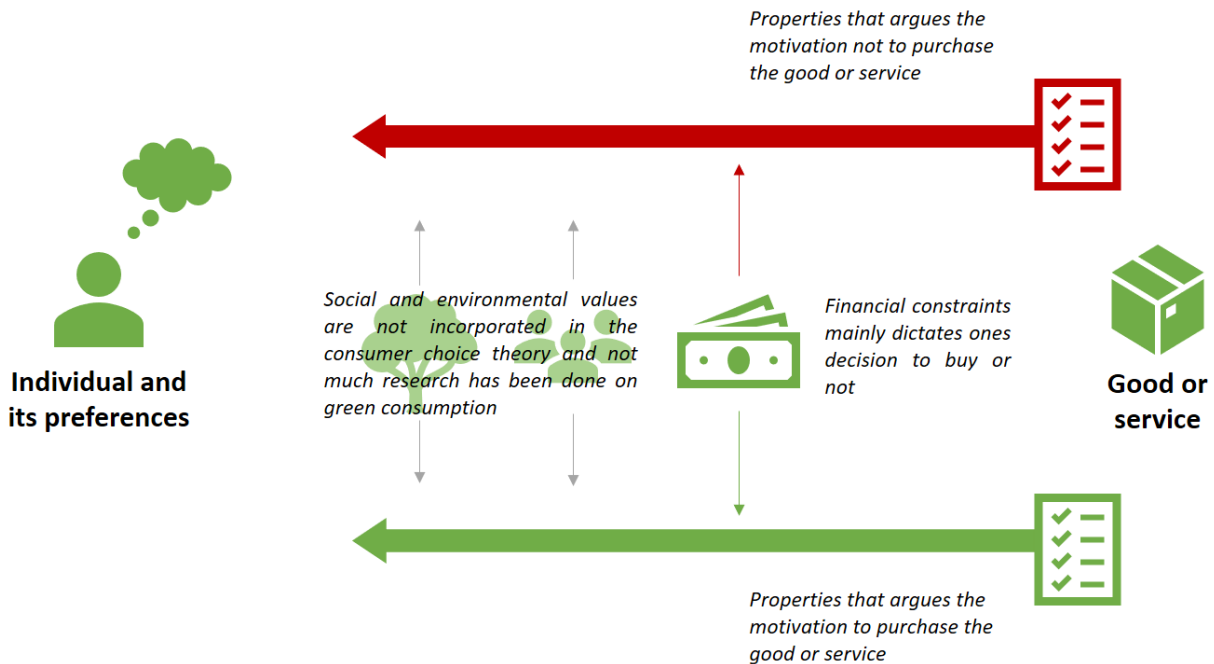


Figure 5: The consumer choice theory studies how individuals decide to spend their money based on their preferences and budget constraint. However, this theory is mainly focused on the financial reasoning behind a purchase. While social and environmental values are important as well in the decision making.

Conceptual model

Research on consumers' green consumption is limited, consumer choice theory mainly focusses on the financial values regarding a purchase. The environmental and social values are not mentioned often in literature, but are as important as the financial values (Gowdy & Mayumi, 2001). An overarching theoretical framework that defines how behavior is determined is used for this research and additional research on consumption and environmental behavior is used to create a theoretical framework to assess the attitude of a saver regarding green saving products. Consumer choice theory is mainly focused on the financial values and reasoning of an individual and its preferences, while environmental values are poorly incorporated unless present in the consumers preferences. Limited research on the topic has found that the overall behavior towards environmental values is influenced by educational background and financial status (Post & Meng, 2017), but also factual knowledge and social influences (Kaiser et al., 1999). In order to answer the research question, the attitude of the saver towards green saving products will be assessed by determining the influence of the environmental values within the theoretical framework based on the theory of planned behavior where the consumer is defined by the saver, the good/service is defined by the green saving product and the behavior is defined by the likeliness or intention of the saver to purchase such a green saving product. We identified 2 main categories that drives ones intention; **(1)** the factual knowledge that shapes the attitude of the individual towards the behavior. Examples are the financial status of the individual or properties of the product or good. And **(2)** social and moral values that shapes the subjective norms of the individual regarding the behavior. This driver is fueled by society that surrounds the individual. Examples are friends, family or local government that influences the opinion of the individual regarding the behavior.

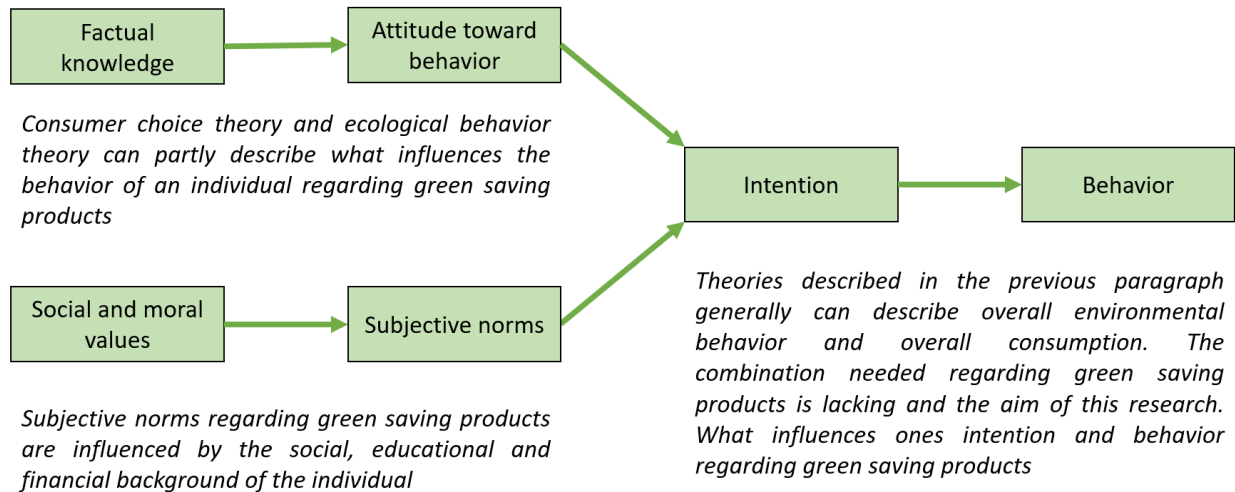


Figure 6: This figure shows the conceptual model which explains the expected behavior regarding green saving products based on existing literature. Expected is that if an individual has an overall positive attitude towards acting green based on their educational background and financial status (Post & Meng, 2017), the individual is also likely to purchase a green saving product.

By means of a questionnaire amongst a sample of the Dutch population, the attitude of savers towards green saving products will be determined. Factual knowledge, social and moral values are being assessed and the intention or relative importance of purchasing a green saving product is being assessed. Statistical analysis on the retrieved data will allow for identifying relative importance of product specifications related to green saving products⁴. Green saving products and conventional products differ in several ways. Green saving products offer lower interest rates, tend to be a restrictive saving product while having a positive impact on society and the environment since the allocated funds can only be invested exclusively in green projects that generate climate or other environmental benefits as agreed upon with the client. These types of products focus mainly on having positive impact rather than offering high returns. Where a conventional saving product offer a low interest rate as well when concerning a unrestrictive savings account, but higher interest rates when it concerns fixed terms. Higher rates can be offered since the bank can invest the allocated in a lot more investment products and projects including ones that are not specifically beneficial for the environment, these types of products mainly focuses on a high return (UN Environment Inquiry, 2017).

Property	Conventional Saving Product	Green Saving Product
Interest Rate	Low (<i>High when restrictive</i>)	Low
Saving Term	Unrestrictive	Restrictive
Focus	High return	Environmental Impact

Given literature states that higher educated people with a healthy financial status tend not to neglect environmental values when making decisions (He, Cai, Deng, & Li, 2016). Subjective norms and factual knowledge regarding sustainability might play also a role in environmental behavior and thus in green saving (Kaiser et al., 1999). Are similar effects present regarding green saving products or are financial constraints too decisive (Jafarkarimi, Sim, Saadatdoost, & Hee, 2016). Based on existing literature, aim is to test the following hypotheses regarding saving products, and where the likeliness of purchasing green

⁴ See appendix D & E for more general information regarding drivers and barriers related to saving.

saving products is assessed by the relative importance of the impact (*sustainable versus non-sustainable*) property of the saving product⁵;

H1: *Individuals with a higher level of educational background are more likely to purchase green saving products.*

Respondents are asked what their highest completed level of education is ranging from primary school to a university degree. Next to this, the highest completed level of education of one of his/her parent is asked. Also, the respondent is asked to answer a few statements regarding their factual knowledge on saving. These factors combined can be an indicator of the individuals level of educational background.

H2: *Individuals with a healthy financial status are more likely to purchase green saving products.*

Respondents are asked what their monthly gross income is, the percentage of which they save each month and the reason for saving and whether or not they think of themselves that they are able to save money for the long term. These factors are indicators of a healthy financial status. The most important is the monthly income, and based on this number respondents are grouped in low, middle and high income groups according to the Dutch Bureau of Statistics.

H3: *Individuals with a more environmental friendly oriented view are more likely to purchase green saving products*

Respondents are asked if they visit organic stores often and how many times a week they eat meat; these factors indicate the respondent's sustainability affinity. In the methodology section we define the elements of each hypotheses more extensively.

Next to these hypotheses, more insight will be derived based on demographic background questions (*e.g. age and gender*) and to be discussed in the results and discussion sections.

⁵ The relative importance is being calculated by using a specific type of questionnaire. In the methodology chapter we will elaborate more on the chosen questionnaire format.

Methodology

In order to be able to answer the given hypotheses needed to generate a conclusion regarding the research question a survey will be conducted amongst a sample of Dutch adult (older than 18 years) savers. Initially, a literature review has been conducted to explain the fundamentals of human behavior and environmental consuming, and to set up a theoretical framework to be used and hypotheses to be tested. Thereafter a survey has been conducted to test the hypotheses that will lead to a conclusion regarding the research question.

Literature

This research initiates with a literature review. Goal was to investigate the fundamental theories of human behavior and consuming and to add research on environmental behavior and consumption in to a newly proposed theoretical framework that explains one's intention towards green saving products. The use of grey literature is important since a lot of data will be extracted from reports generated by (financial) institutions related to this issue. Grey literature refers to literature presented by governments, knowledge institutions and business actors which are not controlled by commercial publishers (Hopewell, McDonald, Clarke, & Egger, 2007). Scientific literature refers to research carried out by an individual or group of scientists which is published in a peer reviewed scientific literature (Schembri, 2007) and will be utilized to explain certain concepts in this research. A theoretical framework has been proposed in the theoretical section already. This framework will be used to explain the behavior of the saver regarding green saving products.

Survey

In order to determine the attitude of the Dutch population towards investing in general and investing in green products, in particular quantitative data will be retrieved by conducting a survey amongst a sample of the Dutch adult population regarding their attitude towards (green) saving. The purpose of a quantitative study is to extrapolate the findings from the survey onto the entire population of Dutch savers. Statistical analysis are needed on the findings in order to make conclusions about the larger population regarding the research topic (Creswell, 2002).

Operationalization

To be able to answer the hypotheses proposed, we define the following elements as the following. To begin with the likeliness of purchasing green saving products which is a returning element in each hypothesis. This is being assessed by conducting a Choice Based Conjoint Analysis (*CBC analysis*) as part of the survey. CBC analysis is similar to a discrete choice analysis and is used to learn about respondents' preferences for the combination of features that make up products, which in this study is the saving product. The respondent is presented with 14 tasks in the first half of the survey to determine their likeliness or intention to purchase green saving products. Each task presents concepts that are described on all the attributes of a product (*The CBC System for Choice-Based Conjoint Analysis*, 2017). For this research we have defined the following attributes and of a savings product and each saving product exposed to the respondents is assumed to be of a Dutch bank and is under supervision of the AFM (*Authority Financial Markets*):

Attribute	Levels	Description
Bank Reputation	Bad Good	Bank reputation might have influence on the intention of opening a saving account even though a presented product has superior attributes compared to other presented products (Flavián, Guinalú, & Torres, 2005).
Interest Rate	0.1% 2.0% 5.0%	Interest rate influences the total realized return. One might prefer higher interest rate over sustainable impact.
Deposit Type	Sight Deposit 2 Year Term Deposit 5 Year Term Deposit	In case of a 5 year term deposit where the individual cannot withdraw its funds from the account for 5 year, might influence the likeliness of purchasing a saving product. In case of a weak financial situation for example. In reality, longer term deposits offer higher interest rates.
Minimum Amount (Euro)	0 2000	Some saving accounts need to have a minimum amount of money deposited before opening such an account, this might influence the likeliness of purchasing a saving product. In case of a weak financial situation for example.
Investment Focus	Sustainable Projects only Everything (excl. socially unacceptable sectors) Everything (incl. socially unacceptable sectors)	The main attribute this research is examining. The behavior of the bank when the account is opened. What purpose will the deposited funds fulfill. Socially unacceptable sectors include e.g: weapons, drugs, criminal states, etc.

Respondents evaluate multiple concepts, but only tell us about the one they prefer (*in traditional discrete choice*). We don't learn how strong that preference is relative to the other product concepts. Showing more product concepts per screen increases the information content of each task, though it increases task difficulty. Research has shown that respondents are quite efficient at processing information about many concepts. It takes respondents considerably less than twice as long to answer choice tasks with four concepts than with two concepts (*The CBC System for Choice-Based Conjoint Analysis*, 2017). For this research to conduct a CBC analysis, Sawtooth Software Lighthouse Studio 9.5.3 and for the specific parameters to generate the tasks, see Appendix H. With these parameters and settings, the random tasks were generated to be exposed to the respondents. An example of a task that can be shown to the respondent is shown in the following table;

	Product A	Product B	Product C	Product D
Bank Reputation	Bad	Bad	Good	Good
Interest Rate	0.1%	0.1%	5.0%	2.0%
Deposit Type	2 Year Term Deposit	5 Year Term Deposit	2 Year Term Deposit	Sight Deposit
Minimum Amount (Euro)	0	0	0	2.000
Investment Focus	Sustainability Projects Only	Everything (Excl. socially unacceptable sectors)	Sustainability Projects Only	Everything (Excl. socially unacceptable sectors)

Each level within an attribute is also valued in relative importance ranging from 1 (*low/bad/slow*) to 5 (*high/good/fast*). The coding of each level is also given in Appendix H. From the analysis eventually, a relative importance per attribute will be given. This relative importance is based on the coding of each level. E.g. when an individual selects a product with a 5% interest percentage (*which is coded with value 5*), the relative importance for this individual specifically on the Interest Rate attribute will be greatly influenced.

In the first part of the survey, we ask the respondent a series of tasks. From this it is possible to derive the likeliness of the individual to purchase a certain product based on relative importance for each attribute. In order to give answers on the proposed hypotheses, we ask in the second part of the survey a series of personal, financial and educational background questions and some statements are asked to be answered. The following table shows the questions of the second part of the survey and thereafter we go through each hypothesis on how to define e.g. the financial status with the answers given of the respondent.

No.	Question	Answer	Purpose
1	What is your age?	Numeric value (0 - 100)	Demographic background
2	What is your gender?	Male Female	Demographic background
3	What is your personal Gross Income (Euro) per month?	<1700 1700-2800 2801-5700 >5700 Won't tell	Financial situation
4	How much of your net income are you saving each month?	<5% Between 6% and 10% >11% Won't tell	Savings behavior
5	What is your highest level of education completed?	Primary Education Middle School High School University Else:	Educational background
6	What is the highest level of education completed by your parents?	Primary Education Middle School High School University Else: (<i>Open</i>)	Educational background

7	What is your primary reason to save?	Additional money for retirement I spend everything! Luxury items (holidays, jewelry, etc.) Primary necessities (groceries, rent, etc.) Else: <i>(Open)</i>	Savings behavior
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Next to background questions, the respondent is asked to answer upon a few statements shown in the following table. The respondent can answer with one of the following 5 possibilities: Totally not Agree, Not Agree, Neutral, Agree and Totally Agree.

No.	Statement	Purpose
8	I have a proper financial knowledge	Factual knowledge and educational background
9	I do my groceries at an Organic Store	Green behavior and sustainability affinity
10	I take the time (e.g. every month) to check my financial status	Factual knowledge on financial status
11	I eat meat every day of the week	Green behavior and sustainability affinity
12	I can set aside part of my savings for 5 years	Savings behavior and financial status
13	I know what my bank does with my savings	Factual knowledge and educational background
14	I can set aside part of my savings for a longer period of time	Savings behavior and financial status
15	If my bank goes bankrupt, I lose all my savings	Factual knowledge and educational background
16	The interest rate on my savings account is very important	Savings behavior

With both the CDC analysis in part one of the survey and the respondents background questions and statements in the second part it we can define the following for each of the following hypotheses:

H1: *Individuals with a higher level of educational background are more likely to purchase green saving products.*

The level of education is determined with the answers on questions 5, 6, 8, 13 and 15. Where each answer given is rated 1, 2, 3 or 4 points and the total amount of points determines the level of education; the higher the total points, the higher the level of education is rated for this research. Regarding questions 5 and 6. Primary Education is rated 1, Middle School is rated 2, High School is rated 3 and University is rated 4 (*if Else is given by the respondent, during data analysis the answer will be individually assessed and valued*). Regarding questions 8 and 13. From Totally Not Agree to Totally Agree is rated respectively 0, 1, 2, 3 and 4 points. Question 15 is rated the exact opposite; this is because of the Deposit Guarantee Scheme (DGS), which guarantees deposits up to 100.000 per depositor in case of a bank failure. This DGS is an EU wide deposit protection directive (European Commission, 2014). The total value for a respondent is divided by 5 and this is the raw educationLevel given to an individual ranging

from 1 (*minimum*) to 4 (*maximum*). All individuals will be grouped and its raw educationLevel will be refined in one of two (*low: 1 - 2.5 and high: 2.5 - 4*)⁶.

Question	Answer + Value
What is your highest level of education completed?	Primary Education (1) Middle School (2) High School (3) University (4)
What is the highest level of education completed by your parents?	Primary Education (1) Middle School (2) High School (3) University (4)
I have a proper financial knowledge	Totally Not Agree (0) Not Agree (1) Neutral (2) Agree (3) Totally Agree (4)
I know what my bank does with my savings	Totally Not Agree (0) Not Agree (1) Neutral (2) Agree (3) Totally Agree (4)
If my bank goes bankrupt, I lose all my savings	Totally Not Agree (4) Not Agree (3) Neutral (2) Agree (1) Totally Agree (0)

H2: *Individuals with a healthy financial status are more likely to purchase green saving products.*

The financial status is determined with the answers on questions 3, 4 and 7. The given income segments are based on low, middle and high-income groups according to the Dutch Bureau of Statistics. All based on the answers given, the individual is given the level of financial healthiness. The higher this level is, the healthier financial status the individual is rated to have. The financial healthiness is, similarly to the education level, calculated by the answers given on the beforementioned questions. Answer on questions

⁶ Initially we divided the total group of respondents in to three groups. This however resulted in a low Educational Level group of only 10 individuals. This is not very representative, and therefore we have selected only two education levels.

3, 4 and 7 will be rated with 1, 2, 3 and 4. The total value of the respondent will be divided by 3 and this will give a raw financialHealth level and will be refined and labeled low (1 - 2.5) and high (2.5 - 4). If an individual responded on either question 3 or 4 (regarding income and saving) 'won't tell'. The individual will not be included in analyzing this hypothesis.

Question	Answer + Value
What is your personal Gross Income (Euro) per month?	<1700 (1) 1700-2800 (2) 2801-5700 (3) >5700 (4) Won't tell (0)
How much of your net income are you saving each month?	<5% (2) Between 6% and 10% (3) >11% (4) Won't tell (0)
What is your primary reason to save?	Additional money for retirement (4) I spend everything! (1) Luxury items (holidays, jewelry, etc.) (3) Primary necessities (groceries, rent, etc.) (2)

H3: *Individuals with a more environmental friendly oriented view are more likely to purchase green saving products*

An environmental friendly oriented view is determined with the answers on questions 9 and 11. These questions were chosen because they are not explicitly asking the respondent about their view on sustainability. Expected was when we asked directly e.g. 'are you sustainable?' they were probably inclined to say yes. Therefore, we asked them if they visited organic stores often and if they eat meat often. These are indicators of sustainable behavior when they do visit organic stores and eat less meat.

Question	Answer + Value
I do my groceries at an Organic Store	Totally Not Agree (0) Not Agree (1) Neutral (2) Agree (3) Totally Agree (4)
I eat meat every day of the week	Totally Not Agree (4) Not Agree (3) Neutral (2) Agree (1) Totally Agree (0)

Results

The total of 291 respondents filled in the survey. Of which 65 were incomplete and thus data has been gathered of 226 individuals. Of those 226 completed submissions, 2 individuals were younger than 18 and will therefore not be included in the analysis as these individuals are too young to take in to account. This results in a total of 224 completed and to be used submissions. Of those were 102 men and 122 women with the following attribute report using CBC HB estimations⁷:

Attribute	Male	Female	Total	Standard Deviation	Lower 95% Confidence Interval	Upper 95% Confidence Interval
Bank Reputation	20.09	32.01	26.58	19.55	24.02	29.14
Interest Rate	33.43	24.32	28.47	15.84	26.39	30.54
Deposit Type	9.30	9.45	9.38	7.65	8.38	10.38
Minimum Amount (Euro)	6.90	6.53	6.70	8.31	5.61	7.79
Investment Focus	30.28	27.70	28.87	15.49	26.84	30.90

What the previous table shows is the relative importance calculated. The interviewed sample experiences the bank reputation, interest rate and the investment focus almost equally important, while almost neglecting the deposit type and required funds. Differences between the two genders are also visible; males prefer more often than women a high interest rate and a sustainable investment focus. While women prefer more often than men to open a saving product from a bank with a good reputation. If we are going to examine the attributes separately we get the following results⁸:

Bank Reputation	Total	Male	Female
Bad	0.143	0.177	0.115
Good	0.357	0.323	0.385
<i>Within Att. Chi-Square</i>	<i>532.289</i>	<i>114.118</i>	<i>462.003</i>
<i>Degrees of Freedom</i>	<i>1</i>	<i>1</i>	<i>1</i>
<i>Significance</i>	<i>p < .01</i>	<i>p < .01</i>	<i>p < .01</i>
<i>Between Group Chi-Square</i>		<i>53.813</i>	
<i>Degrees of Freedom</i>		<i>1</i>	
<i>Significance</i>		<i>p < .01</i>	

⁷ HB or Hierarchical Bayes model is used in mainly marketing research for quantifying the relationship between the predictor variables and an outcome. For more explanation, see Appendix

⁸ The numbers after the attribute levels should be read as follows: E.g. for the male population and a good bank reputation. They have selected a product with a good bank reputation 32.3% of the time it was offered to them (*on average the respondents were shown 50% good and 50% bad bank reputation in all their tasks and since there were 4 options in each task, a good and bad bank reputation is shown twice in a single task but could only have been selected once. Therefore the total of selections bad and good is 17.7% + 32.3% = 50.0%. The other half could have never been selected*)

Interest Rate	Total	Male	Female
0.1%	0.130	0.088	0.165
2.0%	0.232	0.219	0.242
5.0%	0.388	0.443	0.343
<i>Within Att. Chi-Square</i>	528.270	455.453	135.848
<i>Degrees of Freedom</i>	2	2	2
<i>Significance</i>	$p < .01$	$p < .01$	$p < .01$
<i>Between Group Chi-Square</i>		70.355	
<i>Degrees of Freedom</i>		2	
<i>Significance</i>		$p < .01$	

Deposit Type	Total	Male	Female
Sight Deposit	0.280	0.278	0.282
Term Deposit (2 year)	0.245	0.246	0.244
Term Deposit (5 years)	0.225	0.226	0.223
<i>Within Att. Chi-Square</i>	24.389	9.467	15.050
<i>Degrees of Freedom</i>	2	2	2
<i>Significance</i>	$p < .01$	$p < .01$	$p < .01$
<i>Between Group Chi-Square</i>		0.124	
<i>Degrees of Freedom</i>		2	
<i>Significance</i>		not sig	

Minimum Amount	Total	Male	Female
0	0.267	0.259	0.274
2.000	0.233	0.241	0.226
<i>Within Att. Chi-Square</i>	13.805	1.885	14.281
<i>Degrees of Freedom</i>	1	1	1
<i>Significance</i>	$p < .01$	not sig	$p < .01$
<i>Between Group Chi-Square</i>		2.372	
<i>Degrees of Freedom</i>		1	
<i>Significance</i>		not sig	

Investment Focus	Total	Male	Female
Everything (Incl. socially unacceptable sectors (e.g. weapons, drugs, etc.))	0.116	0.101	0.128
Everything (Excl. socially unacceptable sectors)	0.270	0.285	0.258
Sustainability Projects only	0.364	0.363	0.366
<i>Within Att. Chi-Square</i>	490.352	256.222	239.975
<i>Degrees of Freedom</i>	2	2	2
<i>Significance</i>	$p < .01$	$p < .01$	$p < .01$
<i>Between Group Chi-Square</i>		8.998	
<i>Degrees of Freedom</i>		2	
<i>Significance</i>		$p < .05$	

These tables show the factor for each attribute level regarding how much it has been chosen by the individuals and Chi Square statistics for each main effect and joint effect indicating whether the proportions in that table differ significantly from one another (*The CBC System for Choice-Based Conjoint Analysis*, 2017). Regarding Chi Square statistics; we must be aware of interpreting the Chi Square from aggregate counts as a measure of "Importance" for an attribute or assuming that the main-effect Chi Square test that is not significant indicates that the attribute had little impact on choice. Disagreement between individuals on what level is preferred can mask the impact of an attribute when respondent choices are aggregated. For example, if there are only two brands in the study and half of the respondents strongly prefer Brand A over Brand B, whereas the other half feels exactly the opposite, the aggregate count proportions will be equal, and the Chi Square will also be zero. In that case, we would be in error to infer that brand had no impact on choice for individuals. In this example the relative importance of the attribute Brand will be high, so the outcome of the count analysis including the Chi Square statistics must be combined with the relative importance given from the CBC HB estimation in order to be able to draw conclusions from the given data.

A savings product of a bank with a good reputation has been selected 35.7% of the time this option has occurred and a product of a bank with a bad reputation has been selected only 14.3% of the time this attribute level has presented itself in all the tasks. Note that the total is not equal to 100% but 50%, this is because in a single task there were 4 different options of which the respondent could choose from. As a result of an attribute with only 2 levels (*which is the case for the attribute bank reputation*), the attribute levels good and bad can occur multiple times in a single task but selected only once.

These results show that indeed the total group of respondents have chosen a good bank reputation, a high (5.0%) interest rate and a sustainable project only investment focus have been selected most of the times. In some cases, three times as often than a bad bank reputation, low (0.1%) interest rate and a questionable investment focus. This count analysis resulted in the relative importance shown before. The attributes deposit type and minimum amount are showing no large differences between the different attribute levels, which means that the individuals on average experiences these factors as less important in choosing a saving product.

Returning to the results of the first table as well, we can see the reason why males have a higher relative importance for the interest rate; they have selected 44.3% of the time a product with a 5.0% interest rate and only 8.8% of the time a product with 0.1% interest. Compare this to females; females have selected 16.5% of the time a product with a low interest rate and 'only' 34.3% of the time a product with a high interest rate. We can also see the product attributes where there was a significant difference in outcome depending on the respondent's gender; bank reputation, interest rate and investment focus have significant results if the respondent was a male or female.

Now we know how the overall results look like and how to interpret them; in the next paragraphs the proposed hypotheses are being analyzed with the given results.

H1: Individuals with a higher level of educational background are more likely to purchase green saving products

Out of the total 224 respondents, we have categorized 2 different educational levels (*Low and High*). How individuals are being rated is explained already in the methodology section. 62 individuals are labeled having a low education level and 162 individuals are labeled having a high education level. These different groups reported the following relative importance ratings:

Attribute	Total	Low	High
Bank Reputation	26.58	28.38	25.87
Interest Rate	28.47	26.68	29.18
Deposit Type	9.38	9.28	9.45
Minimum Amount (Euro)	6.70	8.91	5.89
Investment Focus	28.87	26.75	29.61

The difference between the two groups is seen mainly in the fact that the individuals with a higher level of education tend to decide to purchase a saving product based on average on the interest rate and its investment focus relative to individuals with a low level of educational background. If we examine the difference between the groups for the different attributes we get the following outcomes⁹:

	Bank Reputation	Interest Rate	Deposit Type	Minimum Amount	Investment Focus
<i>Between Group Chi Square</i>	0.096	25.344	1.599	1.212	15.950
<i>D.F.</i>	1	2	2	1	2
<i>Significance</i>	not sig	p < .01	not sig	not sig	p < .01

Both the interest rate and the investment focus differs significantly between the two educational groups. Individuals with a high level of educational background tend to choose more often for products with a high interest rate and a sustainable investment focus. If examining two-way interactions we see similar outcomes. The between group Chi Square outcomes and the significance are given in the following table;

	Bank Reputation / Interest Rate	Bank Reputation / Deposit Type	Bank Reputation / Minimum Amount	Bank Reputation / Investment Focus	Interest Rate / Deposit Type
<i>Between Group Chi Square</i>	29.516	2.883	2.293	19.685	28.496
<i>D.F.</i>	5	5	3	5	8
<i>Significance</i>	p < .01	not sig	not sig	p < .01	p < .01

	Interest Rate / Minimum Amount	Interest Rate / Investment Focus	Deposit Type / Minimum Amount	Deposit Type / Investment Focus	Minimum Amount / Investment Focus
<i>Between Group Chi Square</i>	26.476	44.313	7.928	21.048	20.473
<i>D.F.</i>	5	8	5	8	5
<i>Significance</i>	p < .01	p < .01	not sig	p < .01	p < .01

If we go through these outcomes one by one we can conclude the following;

1. Bank Reputation / Interest Rate

The high education group favors a high interest rate neglecting the bank reputation. This group selected products with a 5.0% interest rate more often than the low education group, in both

⁹ See Appendix J for the complete data set.

situations (*5.0% interest rate + good bank reputation, 5.0% interest rate + bad bank reputation*). All other combinations have been selected more often by the low education group but they prefer a product from a bank with a good reputation.

2. Bank Reputation / Deposit Type

No significant difference between the education groups. Both have selected a product with a good bank reputation more times than products with a bad bank reputation. Sight deposits are slightly in favor, but there is no significant difference.

3. Bank Reputation / Minimum Amount

No significant difference between the education groups. Both groups prefer products with a good bank reputation and there is a minimal preference of a 0 Euro minimum amount. This difference is however not significant.

4. Bank Reputation / Investment Focus

There is a significant difference here. The high education level group prefer a sustainable investment focus neglecting the bank reputation more often than the low education group. We can see in the results that the low education group base their choices mainly on the bank reputation if they have to choose between these two attributes.

5. Interest Rate / Deposit Type

Any combination with a 5.0% interest rate has been selected by the high education level group more times. For the combinations with the lower interest rates, the low education group have selected these more often. This indicates again, that a high interest rate is more decisive for the high educated individuals.

6. Interest Rate / Minimum Amount

Again, high interest rate has been significantly selected more for the high education level group. Both groups prefer a 0 Euro minimum amount, but this difference is not significant.

7. Interest Rate / Investment Focus

A product with a high interest rate and a sustainable projects only investment focus has been selected 61.2% of the time for the high education group. Which is relatively high considering the fact that this option can be offered more than once in a single task. The low education level group have 'only' opted for this option 45.2% of the time. The combination with 2.0% and 0.1% interest rate has been selected more by the low education group. There is another significant difference here between the groups, the high education level group prefer a high interest rate over the investment focus.

8. Deposit Type / Minimum Amount

No significant difference between the groups. Both groups selected sight deposits more often than the term deposits, but the difference is not significant.

9. Deposit Type / Investment Focus

There is no significant difference within the groups themselves, but between the groups we can see that the combinations with a sustainable investment focus is significantly more preferred by the high education level group. Where the low education level group more often have selected the option with a socially unacceptable investment focus.

10. Minimum Amount / Investment Focus

There is no significant difference within the groups themselves, but between the groups we can see that the high education group are more willing to select a product where a 2.000 Euro minimum is required.

H2: Individuals with a healthy financial status are more likely to purchase green saving products

From all the respondents, only 24 were not willing to give either their gross income or the percentage from their net income they are saving each month. 118 individuals are rated with a low financial health and 83 individuals are rated having a high financial health. The following relative importance ratings were calculated:

Attribute	Total	Won't Give	Low	High
Bank Reputation	26.58	38.14	31.87	15.81
Interest Rate	28.47	18.75	25.80	35.01
Deposit Type	9.38	9.89	9.86	8.63
Minimum Amount (Euro)	6.70	7.57	7.44	5.48
Investment Focus	28.87	25.64	25.04	35.07

The group with a high financial status are more focused on the interest rates bank offers and what the bank does with their money relative to the group with a low financial status. This group is more focused on the reputation of the bank. If we look in to the individual attributes we get the following results (ignoring the 'Won't Give' group in order to have 2 groups; low and high financial status)¹⁰:

	Bank Reputation	Interest Rate	Deposit Type	Minimum Amount	Investment Focus
Between Group Chi Square	60.203	87.509	0.592	1.832	49.754
D.F.	1	2	2	1	2
Significance	p < .01	p < .01	not sig	not sig	p < .01

The two groups differ significantly in their choice based on bank reputation, interest rate and the investment focus. The low financial status group chooses a saving product from a bank with a good reputation significantly more often than the high financial status group. Where the high financial status group chooses significantly more often a product with a high interest rate and a sustainable investment focus. Two Way interactions are calculated as shown in the following table:

	Bank Reputation / Interest Rate	Bank Reputation / Deposit Type	Bank Reputation / Minimum Amount	Bank Reputation / Investment Focus	Interest Rate / Deposit Type
Between Group Chi Square	145.201	61.133	62.482	102.846	90.694
D.F.	5	5	3	5	8
Significance	p < .01	p < .01	p < .01	p < .01	p < .01

¹⁰ See Appendix J for the complete data set.

	Interest Rate / Minimum Amount	Interest Rate / Investment Focus	Deposit Type / Minimum Amount	Deposit Type / Investment Focus	Minimum Amount / Investment Focus
<i>Between Group Chi Square</i>	90.154	139.223	3.106	51.474	56.985
<i>D.F.</i>	5	8	5	8	5
<i>Significance</i>	p < .01	p < .01	not sig	p < .01	p < .01

If we go through these outcomes one by one we can conclude the following;

- 1. Bank Reputation / Interest Rate**
 The low financial status group prefers a good bank reputation over a high interest rate. To illustrate this; the low financial status group have selected a product with a bad bank reputation and high (5.0%) interest rate 18.2% of the times it was offered while a product with a good bank reputation and a low (0.1%) interest rate was selected 23.6% of the times it showed up in the tasks. The high financial status group have selected the products with a high (5.0%) interest rate more often neglecting the bank reputation. To illustrate this; they have selected a products with a high (5.0%) interest rate 37.0% of the times and a product with a good bank reputation and 2.0% interest rate has been selected 24.7% of the times.
- 2. Bank Reputation / Deposit Type**
 The low financial status group significantly chooses more often the products with a good bank reputation relative to the high financial status group.
- 3. Bank Reputation / Minimum Amount**
 The low financial status group significantly chooses more often the products with a good bank reputation relative to the high financial status group.
- 4. Bank Reputation / Investment Focus**
 The low financial status group significantly chooses more often the products with a good bank reputation relative to the high financial status group. On the other side, the high financial status group prefers a sustainable investment focus neglecting the bank reputation.
- 5. Interest Rate / Deposit Type**
 The high financial status group significantly chooses more often the products with a high interest rate relative to the low financial status group.
- 6. Interest Rate / Minimum Amount**
 The high financial status group significantly chooses more often the products with a high interest rate relative to the low financial status group.
- 7. Interest Rate / Investment Focus**
 The high financial status group significantly chooses more often the products with a high interest rate relative to the low financial status group. Here it is also clear what the most preferred attributes are for the high financial status group. They have selected products with a 5.0% interest rate and a sustainable investment focus 73.7% of the times. Disregarding all other attributes including the bank reputation which was more important for the low financial health group.

8. Deposit Type / Minimum Amount

No significant difference between the groups. Both groups selected sight deposits more often than the term deposits, but the difference is not significant.

9. Deposit Type / Investment Focus

The high financial status group significantly chooses more often the products with a sustainable investment focus relative to the low financial status group.

10. Minimum Amount / Investment Focus

The high financial status group significantly chooses more often the products with a sustainable investment focus relative to the low financial status group.

H3: Individuals with a more environmental friendly oriented view are more likely to purchase green saving products

From the total of 224 respondents, 81 individuals are labeled as having a low environmental friendly view and 143 individuals are labeled as having a high environmental friendly view. These groups return the following relative importance ratings per attribute:

Attribute	Total	Low	High
Bank Reputation	26.58	30.63	24.28
Interest Rate	28.47	26.36	29.68
Deposit Type	9.38	9.84	9.24
Minimum Amount (Euro)	6.70	8.50	5.74
Investment Focus	28.87	24.66	31.06

The difference between the two groups is seen mainly in the fact that the individuals with a more environmental friendly view tend to decide to purchase a saving product based on average on the interest rate and its investment focus relative to individuals with a low environmental friendly view. If we examine the difference between the groups for the different attributes we get the following outcomes¹¹:

	Bank Reputation	Interest Rate	Deposit Type	Minimum Amount	Investment Focus
<i>Between Group Chi Square</i>	6.545	30.147	1.203	2.102	22.309
<i>D.F.</i>	1	2	2	1	2
<i>Significance</i>	p < .05	p < .01	not sig	not sig	p < .01

The two groups differ significantly in their choice based on bank reputation and more significantly in their choice based on the interest rate and the investment focus. The low environmental friendly group chooses a saving product from a bank with a good reputation more often. And the high environmental friendly group chooses significantly more often a product with a high interest rate and a sustainable investment focus. Two Way interactions are calculated as shown in the following table:

¹¹ See Appendix J for the complete data set.

	Bank Reputation / Interest Rate	Bank Reputation / Deposit Type	Bank Reputation / Minimum Amount	Bank Reputation / Investment Focus	Interest Rate / Deposit Type
<i>Between Group Chi Square</i>	38.098	7.668	9.542	35.144	32.673
<i>D.F.</i>	5	5	3	5	8
<i>Significance</i>	p < .01	not sig	p < .05	p < .01	p < .01

	Interest Rate / Minimum Amount	Interest Rate / Investment Focus	Deposit Type / Minimum Amount	Deposit Type / Investment Focus	Minimum Amount / Investment Focus
<i>Between Group Chi Square</i>	34.404	49.627	4.793	24.956	26.101
<i>D.F.</i>	5	8	5	8	5
<i>Significance</i>	p < .01	p < .01	not sig	p < .01	p < .01

If we go through these outcomes one by one we can conclude the following;

1. Bank Reputation / Interest Rate

The more environmental friendly group significantly chooses a higher interest rate over a good bank reputation.

2. Bank Reputation / Deposit Type

No significant differences between the groups regarding these two attributes. Both groups do prefer a good bank reputation over a bad reputation neglecting the deposit type.

3. Bank Reputation / Minimum Amount

The difference is not big, but there is a significant difference ($p < .05$). The group with a lower environmental friendly view chooses more often a savings product with no minimum amount of funds is required to open. Both groups prefer a good bank reputation.

4. Bank Reputation / Investment Focus

The group with a high environmental view significantly chooses more often a sustainable investment focus over the bank reputation.

5. Interest Rate / Deposit Type

The group with a high environmental view significantly chooses more often a higher interest rate. Both groups prefer sight deposits.

6. Interest Rate / Minimum Amount

The group with a high environmental view significantly chooses more often a higher interest rate. Both groups prefer no minimum amount of required funds.

7. Interest Rate / Investment Focus

The group with a high environmental view significantly chooses more often a higher interest rate. Both groups prefer a sustainable investment focus.

8. Deposit Type / Minimum Amount

No significant differences between the groups regarding these two attributes. Both groups do prefer a sight deposit and no minimum amount of funds required.

9. Deposit Type / Investment Focus

The group with a high environmental view significantly chooses more often a sustainable investment focus. Both groups prefer a sight deposit over term deposits.

10. Minimum Amount / Investment Focus

The group with a high environmental view significantly chooses more often a sustainable investment focus. Both groups prefer no minimum amount of required funds.

Overall Results

In general we can state that all hypotheses are true. People with either a higher educational background, more financially healthy or more environmental friendly are indeed more likely to purchase green saving products. These groups are more aware of the potential impact their funds can have on their financial situation; they significantly prefer more often products with a higher interest rate. And the impact their savings have; they significantly prefer more often products with a sustainable investment focus. Where the people with a lower educational background, less financial healthiness and less environmental friendly are more focused on the appearance of the institute where they are purchasing the product from; bank reputation.

People in general do prefer higher interest rates, a good bank reputation, a sight deposit, no minimum amount of funds required and a sustainable investment focus. But the significant differences based on educational background, financial healthiness and environmental friendly view are present as stated before.

Conclusion

When concluding the proposed hypotheses we can state the following based on the outcome of this research:

H1: *Individuals with a higher level of educational background are more likely to purchase green saving products.*

True, with $p < 0.01$ there is a significant difference between the low and high educational background groups. When examining the two way interactions, individuals with a higher level of educational background are more likely to purchase a green saving product in most cases (*except for the two way interaction 'Interest Rate' x 'Investment Focus'*).

H2: *Individuals with a healthy financial status are more likely to purchase green saving products.*

True, with $p < 0.01$ there is a significant difference between the low and high financial status groups. When examining the two way interactions, individuals with a higher level of educational background are more likely to purchase a green saving product in most cases (*except for the two way interaction 'Interest Rate' x 'Investment Focus'*).

H3: *Individuals with a more environmental friendly oriented view are more likely to purchase green saving products*

True, with $p < 0.01$ there is a significant difference between the low and high level of environmentally friendly groups. When examining the two way interactions, individuals with a higher level of educational background are more likely to purchase a green saving product in most cases (*except for the two way interaction 'Interest Rate' x 'Investment Focus' and 'Bank Reputation' x 'Investment Focus'*).

If we take a look at our conceptual model proposed earlier in this paper, we have said that the behavior of the individual is driven by its intention. And ones intention is driven by subjective norms and its attitude toward the behavior. These two drivers of an individuals intention are formed by the factual knowledge the individual has regarding the behavior, and the social and moral values. With the outcome of this research we can state that indeed as expected a higher level of education, more financial stability or an environmental friendly view influences ones intention of behaving green and it is also the case regarding green saving products. Individuals are more likely or have a larger intention of purchasing green saving products.

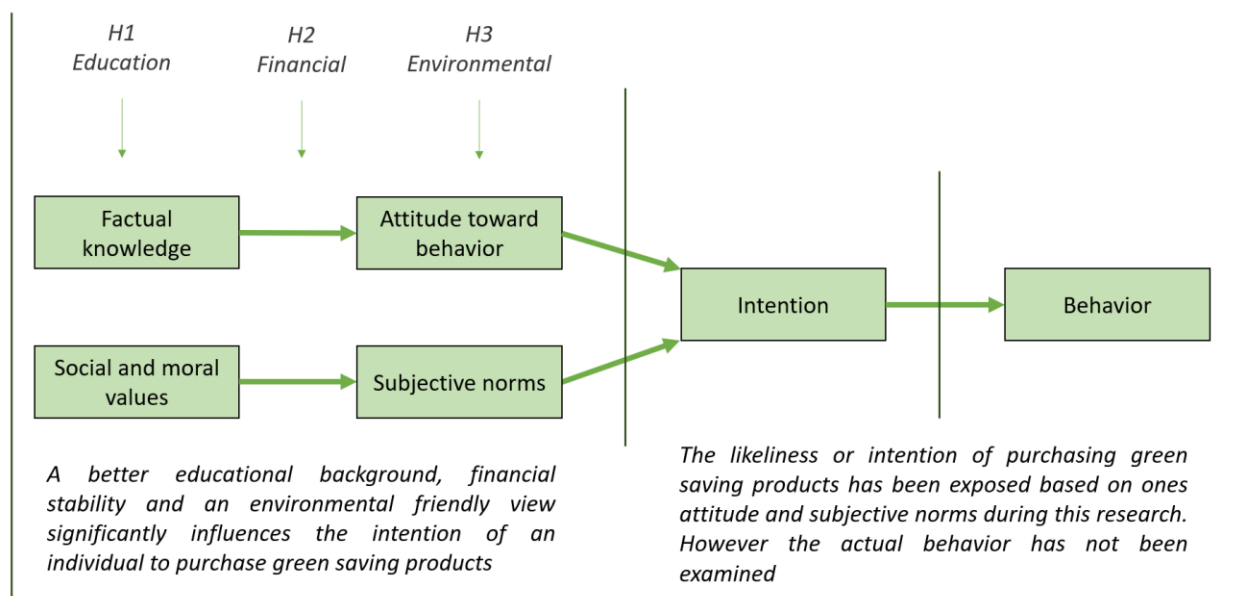


Figure 7: This figure shows the used conceptual model for this research and how the result of the hypotheses positively influences the intention of an individual regarding purchasing green saving products. Note that this research has examined the intention and not the actual behavior.

We must note however that this research examined the intention of a Dutch saver only and not the actual behavior since we have not asked the respondents about their actual savings behavior. If we look back at the research question; *'Which factors lead Dutch savers to invest their capital into 'green' saving products offered by banks?'*, we can make a list of the attributes and factors that has been investigated on, which lead to a higher potential intention or likeliness for Dutch saver to invest their capital into green saving products. We will divide these factors into two groups; **(A)** internal factors, factors which has a direct influence on the savings product (*e.g: product specifications*). And **(B)** external factors, factors that not have a direct influence on the product itself (*e.g: social values in society*).

A1 Interest Rate

A high interest rate is an important attribute for almost every respondent of this research. Financial institutes could make green products more attractive by offering competing interest rates. As stated in the introduction, green saving products usually offer a lower interest rate.

A2 Investment Focus

A bank that invest their funds in green projects and their clients should be aware of this, during the questionnaire it was clear between the products what their funds are being used for. Financial institutes could invest more in marketing their green and sustainable efforts to attract more customers and funds.

A3 Bank Reputation

A good bank reputation attracts more savers according to the outcome of this research. Which was expected, but confirmed again. A good reputation is important (Flavián et al., 2005).

B1 Educational Background

High educated individuals and/or with a proper financial knowledge are more aware of the impact they have with their savings capital. They are more likely to purchase a green saving product. By informing Dutch savers how financial law and regulation works, for instance only 51 respondents answered the question about bank bankruptcy correct (*Totally Not Agree*). The Deposit Guarantee Scheme protects all individuals in the EU (European Commission, 2014). When consumers are more aware of this and other rules regarding saving products, they might be more willing to purchase a green saving product.

B2 Financial Stability

Individuals with a healthy financial situation (*high income and/or healthy savings behavior*) are more likely to purchase green saving products.

B3 Environmental View

Individuals with a environmental friendly view are more likely to purchase green saving products.

These are the main product related factors and non-product related factors, investigated in this research, that can lead Dutch savers to invest their capital into green saving products. Of course we should take a critical note regarding the execution and outcome of this research. This will be done in the next and final section of this paper.



Financial Institutions have direct influence on product related attributes that can lead Dutch savers to allocate their funds into green saving products.

- A1:** Interest Rate
- A2:** Investment Focus
- A3:** Bank Reputation

Non-product related issues driven by society, financial situation and personal development can also lead Dutch savers to allocate their funds into green saving products.

- B1:** Educational Background
- B2:** Financial Stability
- B3:** Environmental View

Figure 8: The most important attributes examined during this research. Grouped in internal factors; factors that financial institutes have direct influence on (e.g. product specifications). And external factors; factors that shapes the individual (e.g. educational background or the financial situation).

Discussion

This research was very specific on a few product attributes and only have investigated on a few external factors that could influence ones green saving behavior according to literature. In this section we discuss the research itself, the outcome and other related discussion points.

To begin with the internal factors; **(A1)** the interest rate is a very important attribute. A high interest rate sparked the interest of the respondents when selecting a preferred saving product. However, this return of interest is valued in currency and currency only. The return the individual or society receives when investing in a sustainable project (*e.g. less air or water pollution*) is not incorporated in the offered return or interest rate. So unless we can value the actual impact green saving products have on society and environment, conventional saving product appears to offer better returns since they usually offer a higher interest rate (UN Environment Inquiry, 2017).

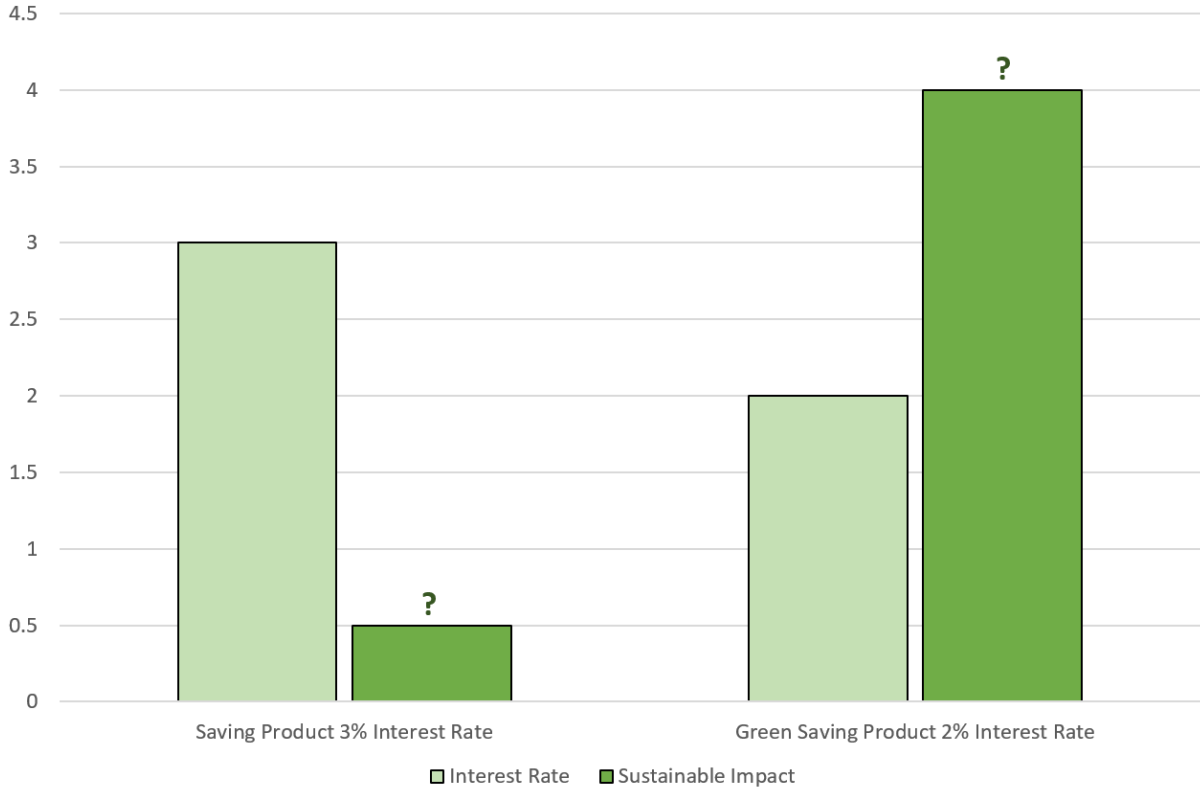


Figure 9: How to value the sustainable impact and make that more attractive. Saving products main attribute now is the offered interest rate and that is what attracts savers.

(A2) The investment focus is important as well for the respondents. When made clear during the questionnaire where the funds could be invested in when having a savings account, respondents were reluctant to select products with a non-environmental friendly investment focus. As stated before, the investment focus should somehow be valued and labeled with a number or similar. This way it is more clear for savers what the additional return of their savings is next to the interest rate. National governments or EU lawmakers perhaps can introduce a green label for saving products or introduce tax breaks for green saving products, similar to the green investment discount of the Dutch tax authorities (Belastingdienst, n.d.).

(A3) A good bank reputation clearly helped respondents decide where to invest their funds in, banks could use a good image and should avoid large PR-losses (Flavián et al., 2005). In the questionnaire we assumed the exposed products were of a Dutch bank and under AFM supervision. The bank reputation might also be influenced by the location it is in or the credit rating it has according to the largest known credit rating agencies (*Standard & Poor, Moody's and Fitch Group*). A bad reputation bank in the Netherlands might still be more attractive for savers than a good reputation Iraqi bank. A positive note is that the deposit type is relative not important for the respondents. This means that longer term deposits are a possibility for consumers to open if the important attributes are met. As a result funds can be used by financial institutions for a longer period of time and long term green projects are thus more feasible.

We must also be aware that there are a lot of other attributes that might influence the consumers preference. To name a few; **(1)** does the bank have offices where individuals can physically visit the bank and ask questions or does the bank operate only via the internet. **(2)** How many possibilities does the bank offer to let you run your finances or get in contact with the bank, only through written mail or does the bank have an easy access internet portal. **(3)** How convenient is it to become a new client if you were not already one, or the easiness to open a new account. One can imagine when it is difficult to change banks or open a new saving account/product, people tend to stay where they are. **(4)** The size of the bank might influence the consumer's behavior, a large bank with a huge amount of capital on their balance invested in different sectors and regions might be more attractive for some savers. Since the bank is more resilient to disruptions in certain sectors or regions.

This research have investigated a few of the attributes related to the saving product where some are more determinative (*Interest Rate, Investment Focus, Bank Reputation*) than others (*Deposit Type, Minimum Amount*). But there are certainly more attributes directly related to saving products that have not been investigated on. This research paved the way for future research that might determine the importance of other attributes.

External factors also had an impact; **(B1)** a good educational background was deciding regarding selecting green saving products, a good educational background during this research was also assessed with a few basic financial related questions on saving. When informing the consumers or the Dutch population on law and regulation regarding banks and financial products, this might increase the likeliness among the Dutch population to allocate their savings into green saving products. Another incentive for the Dutch government is a good educational system. **(B2)** A stable and proper financial situation (*high income and sufficient saving behavior*) was also a significant factor. Individuals with a stable financial status were more likely to purchase a green saving product. However, we must be aware that high educated individuals are more likely to have a higher and more stable financial status (Fernandes, Lynch, & Netemeyer, 2014). Thus note that these external factors might not be entirely independent from each other. **(B3)** An environmental friendly view on the world was a significant factor as well. This factor was only indirectly assessed (*Organic store visits and frequency of meat eating per week*). These questions cannot be directly linked to environmental friendly behavior of an individual, the risk by asking respondents directly what their opinion is regarding sustainability is that they might tend to answer what is socially accepted and thus contaminate data with too positive views on sustainability (Hofisi, Hofisi, & Mago, 2014).

Other external factors that might have an impact that were not examined but might have an impact. As given in the theory section, other social attributes might contribute to environmental behavior. Attributes such as the family background, the national environmental conditions and the national economic conditions (Post & Meng, 2017). This research has checked primarily the situation of the individual itself, disregarding any other attributes that come in to play on a larger scale such as these beforementioned

attributes. These attributes addresses cross border differences as well. This study examined the situation in and for Dutch savers disregarding differences between countries, but also disregarding regional differences within the Netherlands. Differences between cities and countryside, religion and other demographic factors have not been incorporated in this research.

If we look at the chosen method one might argue that additional tasks or more options per task would be more complete. Adding more product attributes and levels or adding a least preferred selection (*best-worse instead of only the most preferred*) or even a 'none'-option would insert additional information about how respondents assess the different attributes and their levels (*The CBC System for Choice-Based Conjoint Analysis*, 2017). However, this same technical paper from Sawtooth argues that by increasing options for respondents, they would lose focus in an earlier stage of the questionnaire and compromising the whole outcome per respondent even more. The same issue holds for asking respondents more questions about their background or asking them more statements to answer. This might lead to not concentrated respondents or uncomplete surveys. Therefore we have only asked respondents a limited amount of attributes, levels per attribute and personal background questions. To have at least a more complete dataset with less information per individual, rather than a less complete dataset but with more information per individual that did finish the survey.

Statistical analysis was done by the used software itself. An independent analysis done by the researcher itself would be more reliable. However without a statistician in the research group the Sawtooth software offered a unique solution to this problem and provides the research group with automatic calculations and estimations that offers the same statistical methods as known in the field (*The CBC System for Choice-Based Conjoint Analysis*, 2017). Also due to time constraints (*there was also an unfortunate waiting period before getting the complete Sawtooth license*) all available time could not be optimally used as the writer was working at an internship and getting synchronically work done for both this research and for SAFENED at the same time. Whenever all time available was being used for this research alone, further understanding of the underlying principles of human behavior could have been realized and more time could be invested in analyzing the data.

Regarding the respondent group; it can not 100% represent the entire Dutch population. The male/female distribution was okay; near 50/50. But the average age of the respondents was only 27 years. Which means that the intention investigated is regarding a relative young part of the population. And since they were still relative young, no huge amounts of personal wealth and capital could have been accumulated for them. Which is the case for individuals who are older and had more years to accumulate personal wealth. The relative young average age of the respondents group is caused by the direct personal and professional network of the writer and of Safened.

To conclude this paper, we must emphasize the fact that this research examined the intention of the individual regarding purchasing or opening green saving products. Respondents were asked what their intention was when exposed to different saving products with different properties, but not what their actual saving behavior is.

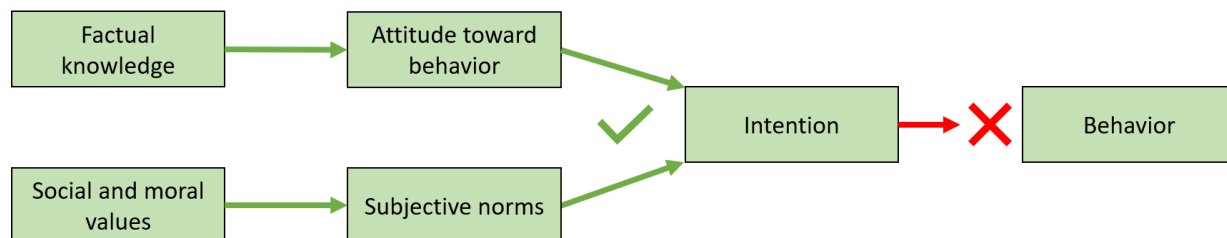


Figure 10: This research examined ones intention regarding green saving products. Found was that interest rate, investment focus of the bank, and bank reputation are important product related factors for individuals to select a saving product. Educational background, financial stability and environmental view are important non-product related attributes for individuals to select green saving products. The actual saving behavior of the sample group was not examined.

Recalling the proposed conceptual model based on existing literature the intention of the individual based on factual knowledge and social values has been investigated on through conducting a survey. Part of the survey was a series of tasks that has been constructed in order to use Choice Based Conjoint Analysis (*similar to discrete choice analysis*). Using this method the intention could be analyzed of the respondent regarding green saving product. Through this part of the survey the main product related attributes were identified. The other part of the survey was to determine the demographic background and situation of the individual. Through this part the important non-product related factors have been identified. Since the survey did not question the actual saving behavior of the individual, we must acknowledge that the link between the intention and actual behavior is still missing and open for future research. According to the numbers introduced in the introduction, a lot of dormant savings (*85.3% of all savings; 297.823.000.000 Euro in the Netherlands alone*) are not allocated in long term green saving products but this study shows that the intention is present under the right circumstances and a sustainable future might be more realistic.

Appendix

A. Attitude

The attitude is the position of an individual to behave in a particular manner formed due to some topic related beliefs possessed by the individual. This behavior formed by the individual's belief has impact on the outcome of certain behavior (Garg & Singh, 2018). In this research, the attitude towards green saving products will be examined. How do individuals behave regarding green saving products based on their demographic and educational background? This research will assess and compare the attitude of savers regarding green saving products with the overall environmental behavior explained in the previous paragraph.

B. Saver, Savings Account & Savings Market

The primary entity that will be researched is the attitude of the conventional savers and for them, savings should be a priority in the development agenda of individuals (Karlan, Ratan, & Zinman, 2014). Keynesian economics, developed by the British economist John Maynard Keynes during the 1930s, states that savings consists of leftover funds after an individual (the **saver**) has subtracted its expenditures from the total amount of disposable income the individual earns in a given period of time. The individual can hold one or more savings accounts on which its savings amount is located. Often, as described in the introduction, these funds are allocated in a nonrestrictive **savings account** over which the individual receives a variable interest rate paid out by the financial institution where the savings account is administered. The total amount of all savings accounts is called the total **savings market**. For example, the total amount of capital of all Dutch saving accounts is the Dutch savings market. The

C. Financial Institutions

The term financial institutions encompass a broad range of corporate entities, these are corporations which provide services as intermediaries of the financial market. These are often regulated by the country it is actively operating in since they are critical parts of the nation's economy (Diamond, 1984). The financial institutions facilitate one primary function: financial institutions facilitate the allocation of resources, across space and time, in an uncertain environment (Levine et al., 1997). This can be broken down to five basic functions; **(1)** facilitate the trading, hedging, diversifying and pooling of risk, **(2)** allocate resources, **(3)** monitor managers and expert corporate control, **(4)** mobilize savings and **(5)** facilitate the exchange of goods and services (Levine et al., 1997). When the term financial institutions is used in this research, it will refer to the part of the broad definition wherein institutions mobilize savings and manages deposits of the non-corporate consumer. In other words when using the term **financial institution**, it will only refer to institutions such as banks that offer savings products for consumers.

D. Drivers for savers to save

The most common reasons are: to accumulate funds to have an emergency fund for unexpected expenses such as losing a job or getting sick. Other reasons to save (more) money is to ensure an extra retirement package for yourself, saving for a future expected expenditure or desired expenditure such as a house, education, vacation or luxury items.

Motives to save can be grouped into an hierarchy of saving motives where ranging from the lowest tier **(1)** 'save to survive' (making sure you can survive the day), to **(2)** 'secure current status' (preparing for unexpected expenditures) and eventually to **(3)** 'creating growth' (saving to buy luxury items and accumulating more wealth) (Fisher & Montalto, 2009). If an individual or a household grows in savings

capabilities it is more likely that more motives to save occur and thus is capable to move up the saving chain. Interestingly, gaining interest is not given as a primary motive in most of the literature about this topic. However, we will take interest into account since this differs often between saving products.

E. Barriers for savers to save

Next to drivers for consumers to actively manage a savings account, there are barriers experienced withholding consumers to save. Known possible **barriers** according to literature are **(1)** transaction costs, **(2)** lack of trust and regulatory barriers, **(3)** information and knowledge gaps, **(4)** social constraints, and **(5)** behavioral biases (Demirguc-Kunt & Klapper, 2012; Karlan et al., 2014; Wilcox, 2008). There are more barriers mentioned in literature, but those can often be grouped in one of these barriers. See appendix A for more elaboration on these terms.

Transaction costs

Costs related to any form of operating regarding a savings account, examples for transaction costs are account opening fees, minimum balance requirement, withdrawal and deposit fees and transaction fees. These forms of costs can discourage consumers of properly making use of a savings account. Another form of transaction costs lies in the withdrawal costs on term deposits; these funds are not available for the saver before maturity date and this can pose as a barrier for savers to invest in term deposit.

Lack of trust and regulatory barriers

The relationship between the saver and financial institutions can have a negative influence on the attitude of savers towards saving at financial institutions. Without a proper basis of trust between the two parties, the willingness to actually use services of the financial institutions. Also, a strict regulation and strict bank monitoring of national and international authorities serves as a barrier. For instance the “Know Your Customer” requirement needs specific identification documents (such as the proof of name, date of birth, address, identity number) from the saver and this can be a big hurdle to mobilize savings in countries that lack proper identification registries (Chin et al., 2011).

Information and knowledge gaps

Absence of financial literacy is often cited as a potential cause of undersaving. Multiple attempts to increase financial literacy are built on three assumptions: knowledge is low, low knowledge causes undersaving, and interventions can increase knowledge. Several studies have been investigating this concept, however the causal link between low knowledge and undersaving looks weak (Fernandes et al., 2014). However, this barrier might be of importance when looking at the attitude towards sustainable saving.

Social constraints

Social mechanisms within and between households can intervene in the savings attitude of an individual. The relative power between the head of a household and the other members can decide the savings mechanisms of all individuals within a household, or the difference in spending preferences or a lack of commitment to financial planning can cause social barriers to savings. A barrier between households is for example when social norms forces individuals to spend all their income to support friends, family and relatives if he/she is asked for. Think in terms of sick friends or family members, or close relatives who are in debt. Social constraints are more found in dynamics among the poorer part of the population according to studies (Karlan et al., 2014). However, this potential barrier will be taken into account regarding green deposits.

Behavioral biases

Cognitive tendencies can lead to undersaving. Biases in **(1)** preferences, **(2)** expectations of the future, **(3)** price perceptions and **(4)** variables that intervene in decision making.

(1) Personal preferences that result in a struggle with self-control. Humans tend to live in today and will start working/studying/saving tomorrow. But when it becomes tomorrow, it is today again and people procrastinate again.

(2) Expectations of the future regarding one's income are often directed by over-optimism. There is even a theoretical model in which undersaving does not occur in a world where people have accurate expectations of future income (Brunnermeier & Parker, 2005).

(3) Underestimating potential gains might also prevent people from saving more, especially in low interest rate periods such as the one we are in right now. One study in China found that financial education and more specifically on compound interest increases the probability of a household to save up to 40% more (Song, 2015).

(4) Saving requires planning and a convenient infrastructure to limit the effort needed for a saver to properly save. Do people make time for this and are banks making it convenient enough for the savers to properly save? These factors dictate the consumer's behavior and attitude towards saving as well.

Consequences of undersaving for the individual is to not have sufficient financial resources to cope with unexpected events that can happen in the near future, e.g. events as a broken car that needs to be fixed, a new laundry machine that is needed, losing your job or getting sick. Leaving out the possibility on the long term not to be independent regarding one's retirement plan (Wilcox, 2008).

F. Sight Deposits & Term Deposits

Deposits consists of money placed into financial institutions for safekeeping. A saving account is an example of a deposit. The account holder has the right to withdraw deposited funds at any time; a **sight deposit**. The deposited funds are becoming an asset of the financial institution and can be used as such. In return, the financial institution offers an interest to be paid to the account holder. A (fixed) **term deposit** is an investment vehicle for consumers. Financial institutions tend to offer a higher interest rate (See figure 3) on a term deposit since the money must stay in the account for a set period of time and cannot be withdrawn by the account holder before the maturity date has passed (Investopedia, 2017).

G. Green saving products

Green saving products, are similar products as conventional saving products. However, the difference is that green products financial products are where the deposited funds are invested exclusively in green projects that generate climate or other environmental benefits. Investments in renewable energy, energy efficiency, sustainable waste and water management, sustainable land use, biodiversity and clean transportation (UNDP, 2017). Since these are long term commitments made by the financial institutions before the project could be realized, it is important that the funds must be an asset for the bank for the total duration of the project lifetime. A term deposit has therefore the most potential to be green since the funds are a usable asset for the financial institution for a longer period of time.

H. Survey parameters and settings

For this research the following parameters and settings were used to generate the tasks for the respondents. With these settings you can recreate the exact same questionnaire:

1. Five attributes with each two or three levels and their relative weight of importance:

Bank Reputation	Bad	1
	Good	5
Interest Rate	0.1%	1
	2.0%	2
	5.0%	5
Deposit Type	Sight Deposit	5
	2 Year Term Deposit	3
	5 Year Term Deposit	1
Minimum Amount (Euro)	0	5
	2000	3
Investment Focus	Sustainable Projects Only	5
	Everything (Excl. socially unacceptable sectors)	3
	Everything (Incl. socially unacceptable sectors)	1

With the weight of importance or internal coding, the software can calculate the overall importance of the attribute. For this research the attribute levels are set in a scale from 1 to 5 where value 5 equals a high importance (*based on literature*) and value 1 equals a low importance.

2. No prohibitions, this means that all kinds of combinations including non-realistic combinations can be exposed to the respondents.
3. 13 random tasks, 0 fixed tasks and 4 concepts per task. A 'None Option' is not included.
4. Random Task Generation Method: Balanced Overlap
5. Design Type: Traditional Full-Profile CBC Design
6. Questionnaire Versions: 300
7. Design Seed: 300
8. No Attribute Randomization and Concept Sorting.
9. Response Type: Discrete Choice
10. No Merged Rows and no Skip Logic

I. Hierarchical Bayes

The Hierarchical Bayes model is called "hierarchical" because it has two levels. At the higher level, we assume that individuals' parameters (*betas or part worths*) are described by a multivariate normal distribution. Such a distribution is characterized by a vector of means and a matrix of covariances. At the lower level we assume that, given an individual's betas, his/her probabilities of achieving some outcome (*choosing products, or rating brands in a certain way*) is governed by a particular model, such as multinomial logit or linear regression (Orme, 2000).

Initial crude estimates of betas are estimated for each respondent to use as a starting point. New estimates are updated using an iterative process called "Gibbs Sampling." The model estimates individual betas as well as the mean and covariances of the distribution of betas. In each iteration, an estimate is made for each parameter, conditional on current estimates of the others. This is done by making a random draw from each conditional distribution. Eventually, after many iterations, this process converges to correct estimates for each parameter. In other words, the HB algorithm produces betas that fit each individual's outcome reasonably well, but "borrows" information from other respondents to stabilize the estimates (Orme, 2000).

After a certain number of "burn-in" iterations (often 10,000 or more), convergence is assumed and the estimates of respondent betas are saved after each or (preferably) every *n*th subsequent iteration. These saved results are called "draws" and they reflect the uncertainty around each respondent's estimated betas. Often hundreds or even thousands of draws are saved per respondent. Point estimates of betas are computed for each respondent by averaging the respondent's draws (Orme, 2000).

HB for Choice Data

HB for Choice Data Choice-based conjoint (*discrete choice*) measurement has grown in popularity over the last five years. Many researchers assert that choice-based tasks are more realistic for respondents than ratings- or rankings-based conjoint questions. However, choice-based conjoint data don't contain as much information per unit of respondent effort as traditional conjoint analysis. Respondents evaluate multiple products in choice sets, but they typically only indicate which one within the set they would choose. We don't learn how much more desirable the chosen product is over those not chosen, nor do we ascertain the relative values of the non-chosen product concepts. As a result, stable individual-level estimation was previously not feasible. Researchers, rather, pooled respondent data using methods such as logit to model the "average" respondent (Orme, 2000).

Using the logit rule on aggregate data led to IIA (*red-bus/blue-bus*) problems in simulations. A new alternative in a choice simulation took share from existing products in proportion to their shares. Cross-elasticities and substitution rates among competing products were assumed to be equal, which certainly wasn't realistic. To alleviate these problems, some analysts turned to building more complex models with additional terms to account for respondent characteristics, cross-effects, availability effects and interactions. These models were complicated to build, and the specification could balloon into a very large number of terms. Estimating so many terms ran the risk of overfitting. Still, for the expert logit modeler, the results could be quite satisfactory and could largely overcome the IIA problems resulting from aggregation (Orme, 2000).

Other techniques such as Latent Class analysis were developed to deal with the problems of aggregation and IIA. The Latent Class approach segmented the market into relatively homogenous groups and fit an average model within each group. Latent Class analysis is an important development and is very useful

for market segmentation. Even though Latent Class helps reduce IIA problems, it fails to provide accurate individual-level estimates (Orme, 2000).

Then came Hierarchical Bayes. The HB algorithm can also be adapted for choice data, where the model is a logit specification and the fit is measured in terms of log-likelihood. Its ability to borrow information from other respondents to stabilize part worth estimation for each individual is particularly valuable for choice data. Rather than rely on the logit rule for market simulations, the researcher can apply a first choice (*maximum utility*) rule to the individual-level estimates (*or the multiple draws*). The first choice rule is immune to IIA difficulties (Orme, 2000).

Applying HB to choice data lets analysts largely solve IIA problems and capture complex cross effects (*through market simulations*) using very simple model specifications (*such as main effects only*) (Orme, 2000).

Conclusion to HB

Hierarchical Bayes estimation is coming of age for market researchers. Academics have published the algorithms and off-the-shelf software is available. PCs are now fast enough to handle small to medium-sized market research problems in a reasonable time (usually between 30 minutes to 4 hours). But large marketing research problems may still require many hours of processing time (Orme, 2000).

By using HB estimation, researchers can improve the reliability and predictive validity of their models. HB estimation helps with some common, vexing challenges, including trying to estimate stable individual-level models from sparse data, multicollinearity and the IIA (redbus/blue-bus) problem in logit simulations. Moreover, the draws generated by HB are useful for statistical testing and estimating non-linear functions of the parameters (Orme, 2000).

J. Data Tables

Analysis Result based on Educational Background Level (Main Effect)

Bank Reputation	Total	Low	High
	224	62	162
Bad	0.143	0.145	0.142
Good	0.357	0.354	0.358
Within Att. Chi-Square	532.289	141.324	391.053
D.F.	1	1	1
Significance	p < .01	p < .01	p < .01
Between Group Chi-Square		0.096	
D.F.		1	
Significance		not sig	

Interest Rate	Total	Low	High
	224	62	162
0.10%	0.13	0.164	0.117
2.00%	0.232	0.249	0.225
5.00%	0.388	0.337	0.408
Within Att. Chi-Square	528.27	64.571	488.109
D.F.	2	2	2
Significance	p < .01	p < .01	p < .01
Between Group Chi-Square		25.344	
D.F.		2	
Significance		p < .01	

Deposit Type	Total	Low	High
	224	62	162
Sight Deposit	0.28	0.275	0.282
Term Deposit (2 year)	0.245	0.237	0.248
Term Deposit (5 years)	0.225	0.237	0.22
Within Att. Chi-Square	24.389	4.075	21.809
D.F.	2	2	2
Significance	p < .01	not sig	p < .01
Between Group Chi-Square		1.599	
D.F.		2	
Significance		Not sig	

Minimum Amount	Total	Low	High
	224	62	162
0	0.267	0.275	0.264
2000	0.233	0.225	0.236
Within Att. Chi-Square	13.805	8.342	6.668
D.F.	1	1	1
Significance	p < .01	p < .01	p < .01
Between Group Chi-Square		1.212	
D.F.		1	
Significance		not sig	

Investment Focus	Total	Low	High
	224	62	162
Everything (Incl. socially unacceptable sectors (e.g. weapons, drugs, etc.))	0.116	0.148	0.103
Everything (Excl. socially unacceptable sectors)	0.27	0.255	0.276
Sustainability Projects only	0.364	0.348	0.371
Within Att. Chi-Square	490.352	86.29	413.359
D.F.	2	2	2
Significance	p < .01	p < .01	p < .01
Between Group Chi-Square		15.95	
D.F.		2	
Significance		p < .01	

Analysis Result based on Educational Background Level (Two Way Interaction)

Can be provided in separate Excel file. Please contact research institute Utrecht University or Erwin de Leeuw directly.

Analysis Result based on Financial Status (Main Effect)

In the bottom right of each table, the significance is given based on only the low and high financial status groups. Thus ignoring the group that did not give either their gross income or percentage of net income that they are saving each month.

Bank Reputation	Total	Won't Give	Low	High
	224	23	118	83
Bad	0.143	0.079	0.121	0.192
Good	0.357	0.421	0.378	0.308
Within Att. Chi-Square	532.289	140.552	405.82	58.389
D.F.	1	1	1	1
Significance	p < .01	p < .01	p < .01	p < .01
Between Group Chi-Square		89.184		60.203
D.F.		2		1
Significance		p < .01		p < .01

Interest Rate	Total	Won't Give	Low	High
	224	23	118	83
0.10%	0.13	0.195	0.156	0.074
2.00%	0.232	0.248	0.249	0.203
5.00%	0.388	0.309	0.345	0.471
Within Att. Chi-Square	528.27	10.342	147.027	473.546
D.F.	2	2	2	2
Significance	p < .01	p < .01	p < .01	p < .01
Between Group Chi-Square		107.753		87.509
D.F.		4		2
Significance		p < .01		p < .01

Deposit Type	Total	Won't Give	Low	High
	224	23	118	83
Sight Deposit	0.28	0.237	0.285	0.285
Term Deposit (2 year)	0.245	0.266	0.246	0.238
Term Deposit (5 years)	0.225	0.247	0.218	0.228
Within Att. Chi-Square	24.389	0.719	18.591	10.634
D.F.	2	2	2	2
Significance	p < .01	not sig	p < .01	p < .01
Between Group Chi-Square		5.351		0.592
D.F.		4		2
Significance		not sig		not sig

Minimum Amount	Total	Won't Give	Low	High
	224	23	118	83
0	0.267	0.269	0.273	0.259
2000	0.233	0.231	0.227	0.241
Within Att. Chi-Square	13.805	1.693	12.505	1.446
D.F.	1	1	1	1
Significance	p < .01	not sig	p < .01	not sig
Between Group Chi-Square		1.846		1.832
D.F.		2		1
Significance		not sig		not sig

Investment Focus	Total	Won't Give	Low	High
	224	23	118	83
Everything (Incl. socially unacceptable sectors (e.g. weapons, drugs, etc.))	0.116	0.149	0.142	0.068
Everything (Excl. socially unacceptable sectors)	0.27	0.27	0.263	0.28
Sustainability Projects only	0.364	0.33	0.346	0.4
Within Att. Chi-Square	490.352	26.743	171.965	325.459
D.F.	2	2	2	2
Significance	p < .01	p < .01	p < .01	p < .01
Between Group Chi-Square		54.181		49.754
D.F.		4		2
Significance		p < .01		p < .01

Analysis Result based on Financial Status (Two Way Interaction)

Can be provided in separate Excel file. Please contact research institute Utrecht University or Erwin de Leeuw directly.

Analysis Result based on Environmental View (Main Effect)

Bank Reputation	Total	Low	High
	224	81	143
Bad	0.143	0.129	0.151
Good	0.357	0.371	0.349
Within Att. Chi-Square	532.289	247.494	290.205
D.F.	1	1	1
Significance	p < .01	p < .01	p < .01
Between Group Chi-Square		6.545	
D.F.		1	
Significance		p < .05	

Interest Rate	Total	Low	High
	224	81	143
0.10%	0.13	0.164	0.11
2.00%	0.232	0.238	0.228
5.00%	0.388	0.348	0.411
Within Att. Chi-Square	528.27	95.697	458.025
D.F.	2	2	2
Significance	p < .01	p < .01	p < .01
Between Group Chi-Square		30.147	
D.F.		2	
Significance		p < .01	

Deposit Type	Total	Low	High
	224	81	143
Sight Deposit	0.28	0.278	0.281
Term Deposit (2 year)	0.245	0.238	0.249
Term Deposit (5 years)	0.225	0.233	0.22
Within Att. Chi-Square	24.389	6.906	18.605
D.F.	2	2	2
Significance	p < .01	p < .05	p < .01
Between Group Chi-Square		1.203	
D.F.		2	
Significance		not sig	

Minimum Amount	Total	Low	High
	224	81	143
0	0.267	0.276	0.262
2000	0.233	0.224	0.238
Within Att. Chi-Square	13.805	11.491	4.406
D.F.	1	1	1
Significance	p < .01	p < .01	p < .05
Between Group Chi-Square		2.102	
D.F.		1	
Significance		not sig	

Investment Focus	Total	Low	High
	224	81	143
Everything (Incl. socially unacceptable sectors (e.g. weapons, drugs, etc.))	0.116	0.147	0.098
Everything (Excl. socially unacceptable sectors)	0.27	0.258	0.277
Sustainability Projects only	0.364	0.347	0.374
Within Att. Chi-Square	490.352	112.894	390.402
D.F.	2	2	2
Significance	p < .01	p < .01	p < .01
Between Group Chi-Square		22.309	
D.F.		2	
Significance		p < .01	

Analysis Result based on Environmental View (Two Way Interaction)

Can be provided in separate Excel file. Please contact research institute Utrecht University or Erwin de Leeuw directly.

References

- Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211. <https://doi.org/0749-5978/9>
- Belastingdienst. (n.d.). Korting voor Groene Beleggingen. Retrieved June 16, 2018, from https://www.belastingdienst.nl/wps/wcm/connect/bldcontentnl/belastingdienst/prive/inkomsten/belasting/heffingskortingen_boxen_tarieven/heffingskortingen/korting_voor_groene_beleggingen
- Brunnermeier, M. K., & Parker, J. A. (2005). Optimal Expectations. *American Economic Review*, 95, 1092–1118. Retrieved from https://q-aps-qa.princeton.edu/sites/default/files/optimal_expectations_0.pdf
- CBS StatLine - Spaartegoeden. (2017). Retrieved December 7, 2017, from <http://statline.cbs.nl/Statweb/publication/?DM=SLNL&PA=7116shfo&D1=0-7,25-49&D2=305-317&HDR=T&STB=G1&VW=T>
- Chin, A., Wilcox, N., Autor, D., Banerjee, A., Craig, S., Duflo, E., ... Yang, D. (2011). Impact of Bank Accounts on Migrant Savings and Remittances: Evidence from a Field Experiment. Retrieved from http://www.uh.edu/~achin/research/ckw_banking_june2011.pdf
- Crespo, D., Grilo, T. F., Baptista, J., Coelho, J. P., Lillebø, A. I., Cássio, F., ... Dolbeth, M. (2017). New climatic targets against global warming: will the maximum 2 °C temperature rise affect estuarine benthic communities? *Scientific Reports*, 7(1), 3918. <https://doi.org/10.1038/s41598-017-04309-0>
- Creswell, J. W. (2002). Research design: Qualitative, quantitative and mixed methods approaches. *New York: Sage Publications*.
- Demirguc-Kunt, A., & Klapper, L. (2012). Measuring Financial Inclusion The Global Findex Database. Retrieved from <http://documents.worldbank.org.proxy.library.uu.nl/curated/en/453121468331738740/pdf/WPS6025.pdf>
- Diamond, D. W. (1984). Financial Intermediation and Delegated Monitoring. *The Review of Economic Studies*, 51(3), 393–414. Retrieved from <http://www.jstor.org/stable/2297430>
- European Commission. (2014). Directive 2014/49/EU of the European Parliament and of the Council. *Official Journal of the European Union*. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0049&from=EN>
- Fernandes, D., Lynch, J., & Netemeyer, R. (2014, January 6). Financial Literacy, Financial Education and Downstream Financial Behaviors (full paper and web appendix). *Management Science*. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2333898
- Fisher, P. J., & Montalto, C. P. (2009). Effect of saving motives and horizon on saving behaviors. *Journal of Economic Psychology*, 31, 92–105. <https://doi.org/10.1016/j.joep.2009.11.002>
- Flavián, C., Guinalíu, M., & Torres, E. (2005). The Influence of Corporate Image on Consumer Trust. *Internet Research*, 15(4), 447–470. <https://doi.org/10.1108/10662240510615191>
- Garg, N., & Singh, S. (2018). International Journal of Social Economics. *International Journal of Social Economics Management Research Review*, 45(3), 173–186. Retrieved from <https://doi.org/10.1108/IJSE-11-2016-0303>

- GDP (The World Bank). (2017). Retrieved December 7, 2017, from <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2016&start=1960&type=shaded&view=chart> <http://databank.worldbank.org/data/download/GDP.pdf>
- Gowdy, J. M., & Mayumi, K. (2001). Reformulating the foundations of consumer choice theory and environmental valuation. *Ecological Economics*, 39, 223–237. Retrieved from www.elsevier.com/locate/ecocon
- GSIA. (2016). 2016 Global Sustainable Investment Review 1. Retrieved from http://www.gsi-alliance.org/wp-content/uploads/2017/03/GSIR_Review2016.F.pdf
- Hands, D. W. (2010). Economics, psychology and the history of consumer choice theory. *Cambridge Journal of Economics*, 34, 633–648. <https://doi.org/10.1093/cje/bep045>
- He, A., Cai, T., Deng, T., & Li, X. (2016). Factors affecting non-green consumer behaviour: an exploratory study among Chinese consumers. *International Journal of Consumer Studies*, 40(3), 345–356. <https://doi.org/10.1111/ijcs.12261>
- Hofisi, C., Hofisi, M., & Mago, S. (2014). Critiquing Interviewing as a Data Collection Method. *Mediterranean Journal of Social Sciences*, 5(16), 60–64. <https://doi.org/10.5901/mjss.2014.v5n16p60>
- Hopewell, S., McDonald, S., Clarke, M. J., & Egger, M. (2007). Grey literature in meta-analyses of randomized trials of health care interventions. In S. Hopewell (Ed.), *Cochrane Database of Systematic Reviews* (p. MR000010). Chichester, UK: John Wiley & Sons, Ltd. <https://doi.org/10.1002/14651858.MR000010.pub3>
- Hüttel, A., Ziesemer, F., Peyer, M., & Balderjahn, I. (2018). To purchase or not? Why consumers make economically (non-)sustainable consumption choices. *Journal of Cleaner Production*, 174, 827–836. <https://doi.org/10.1016/J.JCLEPRO.2017.11.019>
- Inglehart, R., & Welzel, C. (2005). *Modernization, cultural change, and democracy : the human development sequence*. Cambridge University Press.
- Investopedia. (2017). Bank Deposits. Retrieved December 7, 2017, from <https://www.investopedia.com/terms/b/bank-deposits.asp>
- Jafarkarimi, H., Sim, A. T. H., Saadatdoost, R., & Hee, J. M. (2016). Designing a Scenario-Based Questionnaire to Assess Behavioral Intention in Social Networking Sites' Ethical Dilemmas. In *Blurring the Boundaries Through Digital Innovation* (pp. 145–159). Springer, Cham. https://doi.org/10.1007/978-3-319-38974-5_12
- Kaiser, F. G., Wölfling, S., & Fuhrer, U. (1999). Environmental Attitude And Ecological Behavior. *Journal of Environmental Psychology*, 19(1), 1–19. <https://doi.org/10.1006/JEVP.1998.0107>
- Karlan, D., Ratan, A. L., & Zinman, J. (2014). Savings by and for the Poor: A Research Review and Agenda. *Review of Income and Wealth*, 60(1), 36–78. <https://doi.org/10.1111/roiw.12101>
- Levine, R., Easterly, I., Gertler, M., Schiantarelli, F., Shirley, M., & Smith, B. (1997). Financial Development and Economic Growth: Views and Agenda. *Journal of Economic Literature*, 35(2), 688–726. Retrieved from <http://www.jstor.org/stable/2729790>
- Nieto, J., Carpintero, Ó., & Miguel, L. J. (2018). Less than 2 °C? An Economic-Environmental Evaluation of

- the Paris Agreement. *Ecological Economics*, 146, 69–84.
<https://doi.org/10.1016/j.ecolecon.2017.10.007>
- Orme, B. (2000). Hierarchical Bayes: Why All the Attention? Retrieved from
<https://www.sawtoothsoftware.com/download/techpap/hbwhy.pdf>
- Polzin, F., Sanders, M., Tä Ube, F., Kroeze, C., Vranken, H., Caniels, M., & Huitema, D. (2017). A diverse and resilient financial system for investments in the energy transition.
<https://doi.org/10.1016/j.cosust.2017.07.004>
- Post, D., & Meng, Y. (2017). Does schooling foster environmental values and action? A cross-national study of priorities and behaviors. <https://doi.org/10.1016/j.ijedudev.2017.10.010>
- Schembri, P. J. (2007). The different types of scientific literature. Retrieved from
https://www.um.edu.mt/__data/assets/file/0006/42981/The_different_types_of_scientific_literature.pdf
- Song, C. (2015). Financial Illiteracy and Pension Contributions: A Field Experiment on Compound Interest in China. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2580856>
- TenneT. (2017). Retrieved December 7, 2017, from <https://www.tennet.eu/news/detail/tennet-issues-another-eur-1-billion-of-green-bonds/>
- The CBC System for Choice-Based Conjoint Analysis*. (2017). Retrieved from
<http://www.sawtoothsoftware.com/download/techpap/cbctech.pdf?>
- TNS NIPO. (2017). Sterkste groei beleggende huishouden sinds 2000. Retrieved December 7, 2017, from <http://www.tns-nipo.com/nieuws/persberichten/sterkste-groei-aantal-beleggende-huishoudens-sinds>
- UN Environment Inquiry, U. (2017). Green Finance Progress Report. Retrieved from
https://wedocs.unep.org/bitstream/handle/20.500.11822/21608/Green_Finance_Progress_Report_2017.pdf?sequence=1&isAllowed=y
- UNDP. (2017). Green Bonds. Retrieved December 7, 2017, from
<http://www.undp.org/content/sdfinance/en/home/solutions/green-bonds.html>
- WEI 2017. (2017). Retrieved December 7, 2017, from <http://www.iea.org/publications/wei2017/>
- Wilcox, R. T. (2008). Whatever Happened to Thrift? : Why Americans Don't Save and What to Do about it. Retrieved December 7, 2017, from
<https://ebookcentral.proquest.com/lib/uunl/reader.action?docID=3420442&ppg=30>