Master Thesis Achmea Investment Management

How do different retail investors prefer to invest in funds?

A choice based conjoint analysis towards the drivers of consumers in the decision making of retail investing

Master Thesis Marketing Analytics
Erik Visscher
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Achmea Investment Management

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Management summary

As the interest rates on savings accounts keep decreasing, it seems like a natural consequence for more consumers to start investing as the difference in returns between these options is only increasing. However, the amount of retail investors has reached an all-time low percentage although this is expected to grow in the near future. This research aims to discover which attributes are important for potential and current investors while investing in order to attract these consumers. The following problem statement has been formulated as a result of the above: *Which attributes of a retail investment proposition influence the choice of different consumer segments to invest through an investment manager?*

In order to discover these influencing attributes, a choice-based conjoint analysis was done. Returns, costs, risk, investment method and brand were selected as most relevant attributes with the highest expected influence on consumer choice. In addition to this, demographic data was acquired. Based on a Logit analysis, the aggregated data proved returns to be the most important attribute. Costs, risk and investment method followed up respectively. Brand was insignificant on consumer choice.

As a result of a Latent Class Analysis, three segments were identified based on preference data. As opposed to Logit, all attributes were significant for each segment in the LCA. By linking demographic data to these segments, a better understanding of these segments was established. The first segment, *the experienced risk takers*, consist of current investors who had a high preference towards returns and costs. Other attributes were relatively less important to them. The second segment, *the entrepreneurs*, also consist of current investors. However, this group has a strong preference towards investing on their own. The last segment, *the careful beginners*, consist of potential investors who gave high importance to risk.

By inserting realistic market scenario's into a product choice simulation, it was discovered that segment 2 is not an attractive segment for Achmea IM to target. Achmea IM's investment proposition is according to this simulation the best product in the market for segment 1 but not yet in the actual market situation. Hence, the positioning of Achmea IM needs to change in order to reach this segment. Regarding segment 3, Achmea IM needs to change her investment method from 'investing on your own' to 'outsourcing'. This leads to an increase in market share in this segment.

Preface

This thesis concludes the Master Marketing Analytics at Tilburg University which I started in 2016 after completing my Pre-master Marketing Analytics. During my two years at Tilburg University I have not only acquired much relevant knowledge but I also developed as a person and made a few close friends. Continuing my academic career after acquiring my bachelor's degree was a good decision.

I would like to thank Achmea Investment Management for the opportunity to write this thesis during my internship and supplying me with enough knowledge of the retail investment market. Furthermore, I would like to thank my supervisor Ilona Weeterings for giving constructive feedback during our meetings.

As this is the final chapter of my stay at Tilburg University, I am looking forward towards my next big step in life. I hope you enjoy reading my master thesis.

Erik Visscher

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Chapter 1: Introduction

In this chapter, the research topic will be explained. It starts off with an introduction of the company the research will be conducted for. Furthermore, the problem indication of the research will be given. As a result of this, a problem statement and accompanied research questions are formulated. The research method which will be used to answer the problem statement will be discussed in the next paragraph. After this, the managerial and academic relevance of this topic will be explained. Lastly, the chapter is finalized with a paragraph which describes the structure of the remaining chapters.

§ 1.1 Company introduction

This Master Thesis is conducted for Achmea Investment Management ("Achmea IM"). Achmea IM is part of Achmea Holding N.V. which is one the largest suppliers of financial services in the Netherlands. Achmea IM offers pension- and asset management solutions and investment propositions for old age provisions on the Dutch market. They serve both institutional[1]- and retail investors[2]. This research will focus on the retail investment segment exclusively because of it being more managerial relevant in this situation. At this moment, Achmea IM offers two different investment propositions to retail investors. The first proposition, "Investing in Funds", allows retail investors to make their own decisions through eight different funds selected by Achmea IM. Each fund has a different set of risk and reward. Investors make their own decisions regarding how much they invest in each fund and determine the composition of their own investment portfolio. The second proposition, "Convenience Investing", offers a more simplistic solution for consumers, as they can choose from three different funds with clearly defined risk levels: low risk, medium risk or high risk. Consumers make all their decisions online without any personal investment advice. The research is conducted on behalf of the Marketing & Communication- and the Business Development department as Achmea IM desires to improve both propositions and / or their marketing communication activities regarding both propositions.

§ 1.2 Problem indication

To give an introduction of the problem indication, the amount of retail investors in general has been declining for a certain period (RTLZ, 2017). This is believed to be a consequence of the recent financial crisis as the number of retail investors strongly correlates

[1] An institutional investor is a nonbank person or organization that trades securities in large enough share quantities or dollar amounts that it qualifies for preferential treatment and lower commissions (Investopedia).
[2] A retail investor is an individual investor who buys and sells securities for their personal account, and not for another company or organization. Also known as an "individual investor" or "small investor" (Investopedia).

with the position of the AEX (GfK, 2017). In 2015, only 13% of the Dutch households invested on the stock market (AFM, 2016). Even though the amount of investors remains relatively low at this moment, current investors invest on average more financial assets than before. GfK (2017) also concluded that 75% of former investors indicated they consider to return to the investment market given the low current savings interest rate. As the AEX has been increasing last period, the number of investors is expected to grow in the future as well. This leads to opportunities for Achmea IM to attract potential retail investors in the near future.

The retail investment market can be divided into roughly two segments. According to a research of AFM towards retail investors (2015), roughly 60% of the retail investors are investing on their own without any professional advice. This group indicated they followed several investment courses in order to acquire relevant knowledge (AFM, 2015). Even though they formally make the decisions without any advice, some still occasionally meet with experts in order to acquire their knowledge. According to Barber and Odean (2013), financial result of retail investors are not optimal. Despite these results, retail investors who invest on their own still holds the majority of the retail investors. The remaining 40% invests through an investment manager or acquires investment advice. According to a research report of AFM (2016)[3], 67% is investing through an investment manager because they have insufficient knowledge in order to invest on their own. Additionally, 40% is also enjoying the convenience aspect of investing through an investment manager.

The two different propositions of Achmea IM each focus on one consumer segment. “Investing in Funds” focusses on the 60% which makes investment decisions on their own. At this moment, around 5.000 customers are making their own investment decisions through this proposition. The other proposition, “Convenience Investing” focusses on the remaining 40% given the accessibility for consumers with limited investment knowledge. This proposition has not been doing so well in the market and has around 200 customers. The reason behind this low market share is not completely known within Achmea IM. If these numbers are compared to the market potential, Achmea IM’s market share can be defined as very low. Both propositions are included in this research given their similarity. After all, both propositions include funds in which can be invested. Only the amount of funds included in the propositions and the target group is different. In the end, Achmea IM desires to improve their

[3] Respondents could choose more than 1 option.

position in the market by potentially improving both propositions or by improving their marketing communication activities.

As an investment proposition can be seen a complex product for consumers (Bernard, Boyle & Gornall 2008), it can be quite a challenge to figure out what aspect of the proposition to change. Achmea IM needs to gain a clear overview of the importance of each relevant attribute per segment in order to improve their propositions and eventually to increase their market share. To achieve this, the relative effect of each attribute per consumer segment needs to be defined.

§ 1.3 Problem statement

Paragraph 1.2 explains the background of the research problem. This leads towards the following problem statement:

Which attributes of a retail investment proposition influence the choice of different consumer segments to invest through an investment manager?

§ 1.4 Research questions

In order to solve the given problem statement, the following research questions need to be answered.

§ 1.4.1 Theoretical research questions

- What motives does the consumer have to invest or save their financial assets?
- What motives does the consumer have to make their investments through an investment manager as opposed to investing on their own?
- Which decision making process are consumers following while investing?
- Which product attributes are important in an investment proposition according to academic literature?

§ 1.4.2 Empirical research questions

- What is the relative importance of each attribute in an investment proposition?
- Which segments can be defined based on demographical- and behavioral aspects?
- Which attribute levels hold the highest utilities in the aggregated data and in each segment?

- Which combination of attributes achieves the highest market share per segment?
- Based on this research, what are practical implications for Achmea IM regarding their retail investment propositions?

§ 1.5 Research method

This paragraph explains the research approach of this thesis. First of all, relevant attributes need to be defined. In order to achieve this, a literature review will be done. This review results in a clear overview of multiple potential attributes. In order to create a selection of the most relevant attributes for the analysis; interviews will be held with relevant managers, the product portfolio of direct competitors will be analyzed and existing research reports towards retail investing will be analyzed.

When all relevant attributes have been decided upon, their relative importance and the highest utility per attribute level can be measured per segment. In order to measure this, a conjoint analysis will be done. According to Green, Krieger and Wind (2001), it can be seen as a suitable methodology for finding how buyers make trade-offs among attributes and levels. The partworth of every attribute level and the choosing behavior between investment propositions can be inferred from buyer choice simulators. This determines the preference per attribute level. The type of conjoint analysis will be choice-based. A choice-based conjoint analysis, as opposed to a rating-based conjoint or ranking-based conjoint, can be seen as the most suitable way to answer this research question as it can deal with the complexity of choosing two or more competitive profiles. Choosing can be seen as cognitively less demanding than rating and ranking (Louviere, 1994). Given the complexity of the product, this seems like a solid argument to go for choice-based conjoint since respondents must not get exhausted while doing the survey. Furthermore, a choice-based conjoint mimics a real life situation as consumers make choices between products in real life as well instead of rating them. More arguments regarding the choice of research technique will be given in chapter 3.

§ 1.6 Academic relevance

As indicated before, roughly two segments of retail investors exist. One of these segments include consumers who prefer to invest through an investment management company, outsource their investments or invest with advice from professionals. Some investors in this segment buy structured products. A structured product can be seen as a pre-packaged investment strategy. According to Bernard et al. (2008), structured products are popular among retail investors since many of them provide an almost guaranteed return

combined with a limited amount of participation. The remaining members of this segment combined with the other consumer segment make their decisions alone or with advice.

Chater et al. (2010) described the profile of the retail investor and its behavior in general but did not make a difference in consumer preference for different investment methods. As overlap clearly exists within both segments regarding the investment methods, it is unclear to decide beforehand which investment method a consumer prefers based on demographic aspects alone at the moment. In existing academic literature such as Barber and Odean (2013) and Van Rooij et al. (2011) only retail investment behavior in general is described.

To be conclusive, in the current academic literature there has not been any elaborated segmentation data of the retail investment market. In order to acquire this, attribute importance needs to be analyzed in order to get behavioral segmentation. This can eventually be linked to demographic data. This research expands current knowledge regarding investment method preference of current and potential retail investors and provides evidence of the most important attribute levels in an investment proposition for both segments of retail investors. Eventually, this expands the knowledge of preferences between different retail investors but also between current and potential retail investors.

§ 1.7 Managerial relevance

This research ultimately has a goal to improve the market share of Achmea IM within the retail investment market. This goal exists because current market share is seen as rather low with an estimated 1%. As it is rather expensive to maintain an investment proposition, Achmea IM wants to improve their market share in order to be profitable. If the market share does not improve, the proposition will most likely be cancelled in the near future. This causes Achmea IM to abandon a market which is expected to grow in the near future.

Besides attracting current retail investors, the conducted research also benefits Achmea IM to attract potential investors by offering an optimal investment proposition to them. According to the Global Investor Pulse Nederland (2015), consumers in the Netherlands are in general positive towards investing, yet the percentage which actually invests is not very high and lies around 13%. According to a research report about consumers of MeMo commissioned by Knab (2015)[4], 11% of Dutch consumers considers to invest but eventually decides not to do it, 31% think investing generates more money than saving, 55%

[4] Respondents could choose more than one option.

is convinced investing is only for those who do understand the stock market and 41% who have never invested before feel uncertain about investing and admits to have, in their own perception, inadequate knowledge in order to invest. Given the above, it can be assumed that most consumers refrain from investing because they do not feel certain about their possible investment decisions. Another possible solution for this lack of investing among current savers can be explained by the prospect theory which discusses the loss aversion of consumers. Financial losses are twice as impactful as financial gains (Kahneman & Tversky, 1984). Consequently, more potential- and current retail investors can be convinced to invest through Achmea IM by removing, or reducing the impact of, reasons to refrain from investing. In other words, consumers are more inclined to invest through Achmea IM if the product is improved. As this research can simulate an 'ideal product' for different segments, this study will have no difficulty to contribute to the objective described above.

§ 1.8 Structure

The structure of the content in this thesis will be explained in this paragraph. To start off, the research area has been clearly defined in this chapter. It is now known which aspects of retail investing will be discussed and what problem will be solved by researching it. The theoretic framework will be discussed in chapter 2. This eventually leads to answering the theoretical research questions. In chapter 3 the methodology will be clearly defined. This chapter gives the reader an elaborated insight into the research technique. Next in chapter 4, the analysis and results of the research are presented. This chapter should answer the empirical questions. Lastly, the thesis will be finalized with conclusions and recommendations in chapter 5. This final chapter provides an answer to the problem statement, a discussion of the results, practical implications for Achmea IM, limitations in this research and possible insights for future research.

Chapter 2: Theoretical framework

This chapter consists of a literature review. Existing research topics regarding retail investing will be discussed and their respective relevance will be explained. This ultimately leads to a better understanding of the research questions as all theoretical research questions will be answered by the end of this chapter. To start off, consumer motives to save or invest will be inferred. Furthermore, an elaboration on the decision making between different investment methods will be given. This serves as the basis of the decision making process of the consumer which will be discussed in § 2.3. Lastly, a first selection of potential relevant attributes will be made. One may notice the study refers often towards a paper of Chater et al. (2010). This is because this paper offers an extensive study towards the decision making process of retail investors and other related subjects from a behavioral economics perspective. It is considered very valuable regarding this theoretical framework. However, not every point of view is derived from this research in order for this study to still maintain critical by comparing different theories from different perspectives.

§ 2.1 To save or to invest?

In order to conduct a research regarding an investment proposition, it is essential to know why consumers do or do not invest in the first place. Convincing consumers to invest can be seen as rather difficult. Investment management companies apparently agree with the above as 91% of the marketing material[5] prominently display a reason to invest (Chater et al., 2010). As mentioned already in § 1.7, the prospect theory (Kahneman & Tversky, 1984) can be seen as the biggest reason for consumers to save. This theory discusses the loss aversion of consumers. Consumers tend to weight financial losses twice as impactful as financial gains. This makes consumers extra cautious regarding their decision to potentially invest their financial assets as the possibility of losing money increases. Thus, a higher risk of losing money means a lower probability to invest.

Previous research also discusses the default theory of Kahneman (2003). This theory also explains why consumers prefer saving over investing. The ‘default option’ is most preferred among consumers and can be considered the option you automatically get without actively looking for an alternative. For example, the famous organ donor situation: Johnson and Goldstein (2003) discovered a significant increase in organ donors if consumers are being a donor automatically as opposed of when a certain action is required to be one. Saving can be considered the default option between investing and saving since most consumers start saving

[5] Based on 124 examples.

at a young age. Summarizing, saving is preferred over investing due the convenience of saving being the standard given option in life.

In addition to this, consumers also tend to overestimate the probability of unlikely events to occur (Barberis, 2013). In an extreme scenario, an investor may potentially lose all his invested assets. In reality, however, it is very unlikely for this situation to occur. According to the theory above, a consumer should also overestimate the probability of losing all his money while saving it. However, this can be rejected by the narrow framing theory. A consumer usually focusses on a certain set of risks while disregarding another set (Benartzi & Thaler, 1995). This refers in this situation to a focus on the potential losses of investing while disregarding the potential losses of saving. In other words, risks of investing are often overestimated while risks of saving are relatively underestimated as risks are often viewed in isolation (Barberis, 2013).

Consumers are not only incapable of making the right estimation of risks, but they are also bad in general at calculating chances according to Kahneman and Tversky (1973). This means consumers are bad at making realistic calculations of possible investment outcomes as calculating chances and risks plays an important part in this. In addition to this, consumers also underestimate the effect of exponential growth (McKenzie & Liersch, 2011). This means they have a bad ability to estimate their financial results over a long period of time. According to an experiment of McKenzie and Liersch (2011), the majority of the participants expects their savings to grow linear instead of exponential. It can be assumed this underestimation of exponential growth can be extended towards investing as well. Consumers could prefer saving over investing since they presume the difference in earnings is smaller than in reality. To conclude, making realistic calculations regarding investment decisions is difficult for consumers which possibly causes them to base their decisions on somewhat incorrect information.

The previous described literature gave several reasons of why consumers refrain from investing. Retail investors differ from the typical saver, as described above, both behavioral and demographically (Chater et a. 2010). Van Rooij et al. (2011) discovered, using a comprehensive survey, causality between financial literacy and stock ownership. More financially literate consumers are more likely to invest than less financially literate consumers. Furthermore, Chater et al. (2010) discovered retail investors are older, better educated and wealthier than the average consumer. They also suggest that consumers possess

insufficient knowledge about the retail investment market in general. This makes them more likely not to participate in the stock market (Barberis, 2013). The main reason for consumers to invest instead of save is to acquire a potentially higher financial result (Chater et al., 2010). Chater et al. (2010) also indicated consumers invest because of a clear defined goal for the future. Conclusively, investors are more financial literate, are older, have a better education, have a higher income and have a better understanding of the investment market in general.

In addition to the above, some consumers also enjoy the accompanying excitement while investing. According to Grinblatt and Keloharju (2009), investors who are sensation seekers are often engaging in investing situations with more risk involved. However, the first incentive of the consumer to invest is often triggered by a certain event in life such as a conversation with a peer or suddenly receiving 0% interest on your savings (Chater et al., 2010). Regarding the investment decisions, retail investors tend to base their decisions on financial results or events from the past (Greenwood & Shleifer, 2004). Consequently, the AEX strongly correlates with the number of investors on the Dutch stock market (GfK, 2017). Given the fact the AEX will most likely grow in the near future, the number of investors are expected to grow in the future as well according to the social proof effect of Cialdini (1993). This theory suggests that if a lot of people in a consumer's environment have a certain product, said consumer assumes this is a good product. This means if many peers are starting to invest, people assume it is a good time to do so as well. Lastly, the save interest has been historically low the past years. According to GfK (2017), this is the main reason for potential investors to invest. This also increases the gap in earnings between saving and investing and ultimately reduces the loss aversion of consumers which gives them more incentive to invest. In the end, consumers start to invest because of a certain event relatable to investing which occurs in their life. Given the decreasing interest rate, these events are expected to occur more often in the future.

To summarize this paragraph, consumers have an unrealistic image of the possible outcomes of investing. They do not invest because they tend to overweight the possible losses compared to the possible profits. Furthermore, saving can be considered as the standard option in which a lot of attention is required in order to make investing the standard option. Consumers who do invest are more financially literate and start investing because of a certain event in their life which occurred such as a recommendation of a peer or the current low save interest rate.

§ 2.2 Choice between different investment methods

Even though a lot of research has been done towards retail investors and retail investment, there has not been a lot of research on the decision making between different investment propositions. Hence, existing research about retail investors in general will be discussed and applied to this particular subject. To start off, according to AFM (2016), the distribution among the different investment propositions lies rather close to each other as 60% invests on their own and 40% outsources their investments or invests under advice. Based on van Rooij et al. (2011) it can be assumed that the latter group of people is less financially literate as they indicate to be so themselves. Furthermore, the population which invests on their own indicated to participate in several courses in order to gain investment knowledge (AFM, 2016; Chater et al. 2010). Yet, retail investors who make their investment decisions on their own still underperform on average by 1,5% compared to institutional investors (Barber & Odean, 2000). Even while underperforming, retail investors stay rather optimistic regarding their outcome. According to Barberis (2013), consumers also tend to overestimate the probability of unlikely events to occur. In other words, this explains why retail investors might be overconfident and still try to outperform the market. In an attempt to protect consumers from this overconfidence, they are obligated to make a MiFiD suitability test to measure whether they are capable to invest (ESMA, 2012). This test must be made when consumers inquire for information at an investment management company. The outcome of this test only counts as an advice but in general it determines whether you are capable of investing yourself, should invest under advice or should not invest at all. In theory, this seems like a proper method in order to test your investment capabilities. However, consumers admitted to have made the suitability test rather optimistic in order to gain more freedom in their investment decisions (Linciano & Soccorso, 2012). Nevertheless, based on solely returns, it seems like a logical choice to outsource your investments as an investment management company will achieve higher profits. However, a structured product might not be preferred by all retail investors as some are convinced they achieve comparable results as professionals or are not interested in paying managing costs. Furthermore, investing yourself can also be seen as a fun and exciting activity (Chater et al. 2010). On the other hand, structured products can also be seen as rather complex and not transparent (Bernard, Boyle & Gornall, 2008). This means many unseen costs can occur which might result in lower returns compared to investing yourself.

To be conclusive, in general it is expected for financially literate investors to make their own investment decisions with little to no advice. Less literate investors are expected to ask for guidance and advice from professionals or buy a structured product. However, some deviation exists in this conclusion among investors according to the overconfidence effect.

§ 2.3 The decision making process of retail investing

According to Kotler and Keller (2011), a rational consumer follows five steps in his or her decision making process. This includes problem recognition, information search, evaluation of alternatives, purchase and post purchase behavior. According to Kahneman (2003), consumers make their decisions in each step by Kotler and Keller (2011) according to the rational choice theory. Or more specifically for this research, carefully assessing the risk and return of all possible investment methods (Barber & Odean, 2013). This assumes decision makers take all available information, events, costs and benefits into account before making a decision. This means they try to go through each step of the decision making process to optimize their decision. In reality, consumers might deviate from this and will not go through every step adequately because of potential corrective effects of the market (Knez, Smith and Williams, 1985). An example of this could be when the decision maker receives a suggestion from a close friend. He or she values this opinion a lot and decides to make the decision based on this entirely. Barber and Odean (2013) defined these effects as heuristics in the decision making process. Consequently, this eventually leads to bias and hence lets the consumer deviate from the rational decision making process. Based on this, the decision making process of a retail investor is not entirely rational. Chater et al. (2010) defined the decision making process of the consumer in retail investing according to the mentioned steps above. However, the degree of rationality differs in each step. Remarkable deviations will be discussed per step.

§ 2.3.1 Problem- or need recognition

Chater et al. (2010) documented that consumers are starting to invest because of a certain event that occurred in their lives. These events can be external such as seeing an advertisement or having a conversation with a peer, but also personal such as a home extension, pay rise or a new job. These events eventually lead to the actual problem recognition such as a more lucrative method to save money or saving up for a certain goal such as a new car or building up a bigger pension. When it comes to the actual ‘problem’, it remains simply almost identical for every consumer: making more money. In other words, the ‘need’ gets created when consumer decide to invest instead of save. This ‘need’ cannot only

occur by personal events but can also be stimulated by external situations such as advertisements.

§ 2.3.2 Information search

Given the importance of the investment, consumers are expected to spend a lot of time on searching information. This is because consumers tend to be cautious regarding decisions which potentially get a negative financial result (Kahneman & Tversky, 1984). However, according to Kumar and Lee (2006) they spend significantly less time than institutional investors. This is on its own not a surprising finding but retail investors mainly tend to be very dependent on information of the supplier of the investment proposition (Kumar & Lee, 2006; Chater et al., 2010). Their prior financial literacy has a positive moderating effect on information search as consumers struggle with understanding their investments. Only four out of ten retail investors fully understood the information they were researching regarding their investments (Chater et al., 2010). Alternative sources of information are financial websites, family and friends. The type of information which is searched includes the investment strategy. Firstly, the amount of risk of the strategy must be decided upon. If a consumer desires to acquire high profits, he naturally must take more risk. Moreover, low risk result in low profits. Secondly, potential investors need to decide whether they invest themselves, invest under advice or outsources their investments. This decision is mostly based on the financial literacy of the investor (AFM, 2016; Chater et al. 2010; van Rooij et al. 2011). Conclusively, the information search of consumers is rather limited and focused on one source often: the supplier of the investment proposition. This is remarkable given the accompanied risk. In other words, this step is not considered completely rational. Consumers have some difficulty, based on their financial literacy, with understanding the information acquired from their source. Thus, they just assume the information supplier is correct most of the time.

§ 2.3.3 Evaluation of alternatives

Alternatives in this context can be split in different investment companies and different investment propositions. Chater et al. (2010) described the amount of consumers which compares alternatives surprisingly low. Only roughly 30% seriously compares alternatives to each other and shops for the ‘best deal’, the remaining consumers often invests in a familiar proposition from a familiar company (Chater et al., 2010). Propositions are usually compared based on the expected costs. Consumers make fast decisions in general based on low costs. Most comparisons were made using simple heuristics in order to identify

alternatives such as only choosing familiar brands and products or heavily relying on recommendations. Heuristics include simple rules of thumb in order to reach a quick satisfactory decision. According to Kahneman and Tversky (1973), they are considered as common human errors. In the end it can be assumed consumers are going for familiar options which are also not rational decisions.

§ 2.3.4 Purchase

After evaluating alternatives, consumers make their decision. According to Chater et al. (2010), most investors choose the product which is in their opinion the safest choice. However, other aspects are also to influence purchase decisions. This includes the default theory (Kahneman, 2003) and can be further elaborated by expanding it towards their investments or portfolio choice. Consumers tend to pick the 'standard' or average presented proposition (Madrian & Shea, 2001). The average presented option regarding investment propositions can often be considered as the proposition with an average return and risk as this one will be positioned in the middle. Furthermore, the amount of offered products can also influence choice. According to Lyengar and Lepper (2000), too much choice could lead to a non-optimal choice or no choice at all. In a situation where the potential investor has low financial literacy, too much choice potentially leads to confusion and an overwhelmed feeling (Agnew & Szykman, 2005). Hence, a simplified sales model with limited options and accessible information could lead to an increase in sales (Chater et al. 2010). The theory of hyperbolic discounting by Laibson (1997) also influences consumer choice. According to this theory, consumers prefer rewards on short notice which decreases the value of future rewards. This effect could lead to an underestimation of future costs. This means for example that purchase costs are weight heavier than managing costs even though managing costs are relatively more expensive. Summarizing, actual purchase is often occurring when the consumer is feeling confident with his or her decision. This 'confident feeling' can be easier achieved by offering products in a certain way in which it is more understandable by consumers.

§ 2.3.5 Post purchase behavior

Just 56% of the retail investors indicated they considered their investment optimal after purchase (Chater et al., 2010). A naturel consequence of this is that the remaining 44% of the retail investors will make some adjustments to their investment strategy. Retail investors are also unlikely to repurchase a stock which they sold for a loss in the past (Strahilevitz et al., 2011). This means investors are also less likely to invest in a certain

investment proposition again when it had a negative return in the past. Regarding the adjustment process, a positive relationship between portfolio returns and information choices exists according to Elliot et al. (2006). As a retail investors learns how to filter his information input, he makes more elaborated decisions. This potentially leads to a more elaborated purchase behavior. Furthermore, by letting investors reflect upon their own choices (Meyer et al., 2015) and supplying them with short term investment solutions (Gerhard et al., 2015), significant improvement in financial results can be measured. However, not all retail investors improve their investment decisions after adjustment. Bhattacharya et al. (2012) concluded that investors which require the most decision making support are least inclined to actually utilize it. This means investors who had a positive attitude towards warnings and advice seemed to make more optimal investment strategies and vice versa. As retail investors gather more information, they are more certain about their decisions as well (Schroff et al., 2016). This could lead to confirmation bias and leads to a certain interpretation of information in which it confirms one's existing beliefs (Nickerson, 1998). This means consumers might not adjust their investment strategy as they think their current one is optimal while this is not always the case. To conclude, investment decisions are not optimal in the beginning. But by advising consumers, their results can be improved. However, not every investor is eager to ask for investment advice.

§ 2.4 Selection of attributes

As the problem statement of this study is to find the influence of different product attributes on consumer choice, it is essential to define a suitable elaborated list of attributes. A first selection of attributes potentially used in the analysis will be selected in this chapter based on academic literature. To start off, risk is selected as the first attribute to be included as different consumers make decisions based on their personal risk aversion according to Barber and Odean (2013). Furthermore, costs are included as this was defined as the main comparison factor between different investment propositions (Chater et al. 2010). Moreover, returns are included as receiving more assets is the main reason for consumers to invest in the first place (Chater et al. 2010). Brand is also included as trust in a certain company reflects positively on investing in that particular company (Guiso et al., 2008) and consumers choose familiar companies in general (Chater et al., 2010). Investment method is included as this is also seen as a commonly decider while choosing investment propositions according to Chater et al. (2010). Cost disclosure is also a potential attribute as, according to Barber et al. (2005), costs are hard to identify by some consumers. Also, type of channel is included as consumers

choose a channel which fits their personal situation most (Zeniya, 2005). Lastly, the number of funds are included because this might lead to some confusion to non-financially literal consumers (Agnew & Szykman, 2005).

§ 2.4.1 Risk

Behavioral scientific research by Kahneman and Tversky (1973) indicated consumers are bad at calculating probabilities of opportunity and risk. In order to protect consumers from making decisions in which they do not consider the accompanied risk, a risk meter must be included while offering any kind of investment product. This risk meter can be referred to as the 'essential investors information' (Ebi) (AFM, 2017). The influence of a risk meter can differ among consumers. This is because consumers take different decisions regarding the accompanied risk which is based on their personal risk aversion (Barber & Odean, 2013). In general, consumers asses risk and make investments matching their personal risk aversion. However, current investors are more likely to take risks in order to earn higher returns than potential investors (Chater et al. 2010). Hence, the consumer decision making process when taking their own risk aversion into account, might be interesting to investigate.

§ 2.4.2 Costs

Costs include the fee a company charges the investor for investing his or her funds. Several types of costs exist. In this research, all types of costs included are based on a past conjoint analysis conducted by Motivaction (2015). Motivaction researched the preference of different kinds of costs accompanied by brand name. In Appendix A1 the results of this research are shown. Based on this analysis, monthly fee is considered as most important expense among current and potential investors. The remaining expenses were managing costs, buying and selling costs, switching costs and frequency of the payment. A relatively small amount of retail investors compare different investment propositions to each other was concluded by Chater et al. (2010). When they do compare, however, they base these comparisons on expected costs. Based on this, costs are used as the common variable to compare different investment propositions, so it might be interesting to study its relative effect.

§ 2.4.3 Returns

Returns include the amount of money an investor receives over his or her invested assets. According to Chater et al. (2010), the main reason for consumers to invest is to acquire higher financial results. This seems rather obvious as almost every consumer invests in order to grow their financial assets. Given the above, unexperienced consumers still lack a solid

reference point regarding returns. As described in § 2.4.2, investment propositions are compared based on expected costs instead of returns (Chater et al., 2010). The influence of presented returns is therefore potentially interesting to measure in the study.

§ 2.4.4 Brand name

A brand signals the identity of the product to the consumer (Aaker, 1991). Even though investment propositions can be compared rather objectively given the homogeneity of the product, a brand name can make a difference in this comparison. More specifically, next to expected costs, expertise of the company and trust in the company are also key deciders for consumers for retail investors (Chater et al., 2010). These can be both reflected towards brand reputation or brand name. According to Guiso et al. (2008), it is shown that trust in a company has a positive significant effect on investing. Furthermore, expertise refers in this situation to authority, one of the six principles of Cialdini and Goldstein (2004). This means that consumers are more likely to purchase a product which is presented by a figure which shows authority. This also applies for a certain company which shows authority and expertise in a certain area. As a potential investor's financial capabilities are limited, this effect is even stronger (Chater et al., 2010). Additionally, consumers also select their products based on brand familiarity (Chater et al., 2010). The effect of certain brand names is therefore interesting to investigate in this study.

§ 2.4.5 Investment method

Next to growth in financial assets, investment method can also be identified as a commonly mentioned factor in the consumer's investment decisions (Chater et al., 2010). Investment method can in other words be described as the way the supplier of the funds supports the investor. It can be inferred from past chapters that financial literacy has among others effect on stock ownership (Van Rooij et al., 2011). This effect can be extended towards the preference of investment method as consumers with less knowledge prefer structured products (Bernard et al., 2009). Based on research from Meyer et al. (2015) and Gerhard et al. (2015), retail investors achieve financially better results when given advice. However, Bhattacharya et al. (2012) concluded not all investors are equally likely to follow this advice. Hence, it is interesting to know which other segmentation criteria influence the type of investment and how it is preferred with respect to the other attributes.

§ 2.4.6 Cost disclosure

Cost disclosure refers to how the costs are displayed. While looking at an investment proposition online, a lot of documents are included with one proposition[6]. This sometimes makes it hard for consumers to understand the cost structure. According to Barber et al. (2005), some fees may be hidden or not identified by the consumer as costs. Carlin (2009) suggested some providers even increase the complexity of their products on purpose. According to a consumer research of Motivaction (2015), 83% of consumers exactly want to know which costs are being charged for what reason. Furthermore, 69% is convinced investment's costs are not transparent at the moment. The influence of whether costs are fully disclosed or not, is therefore interesting to study.

§ 2.4.7 Type of channel

As the retail investment market is analyzed in the literature and locally, three types of suppliers can be identified (AFM, 2016; Motivaction, 2015; Chater et al. 2010). The most preferred option by a large margin according to consumers are banks. The other two options are insurance companies and investment managers. Every channel probably has its advantages and disadvantages given the different associations of consumers with them. According to Zeniya (2005), customers choose a distribution channel which fits their personal situation most. Hence, its potential relative effect might be interesting to discover per segment.

§ 2.4.8 Number of funds offered in proposition

An investment proposition sometimes consists of a certain amount of funds. For example, "Convenience Investing" consists of three different funds where "Investing in Funds" consists of eight different funds. This amount has a potential effect on consumer choice. This is because consumers are expected to pick the 'standard' or average presented proposition (Madrian & Shea, 2001). This means in the case of "Convenience Investing", consumers are most likely to pick the second option as it represents the average or middle option. Furthermore, the amount of offered products can also influence choice. According to Lyengar and Lepper (2000), too much choice could lead to a non-optimal choice or no choice at all. In a situation where the potential investor has low financial literacy, too much choice potentially leads to confusion and an overwhelmed feeling (Agnew & Szykman, 2005).

§ 2.4.9 Conclusion

Eight potential attributes are described above to be most important within an investment proposition based on market research, a competitive analysis but most importantly

[6] For example, one Centraal Beheer fund includes five different documents.

a literature study. These attributes include: risk, costs, returns, brand name, investment method, cost disclosure, type of channel and number of funds. In the next chapter, these potential attributes will be analyzed in depth to conclude their relevance to this study. By linking practical insights combined with criteria from literature, a definite list of attributes can be created.

Chapter 3: Methodology

As chapter 2 concluded the theoretical research questions of this study, the following chapter will focus on the explanation of the empirical research method. To start off, the research technique will be explained and further elaborated on why it is suitable to solve the problem statement. Furthermore, the attribute selection process will be explained and all attributes will be assigned levels according to literature and market research. The design of the study and its effectiveness will be explained in the third paragraph of this chapter. Lastly, the working method is described in the fourth paragraph. This includes a step-by-step description of the execution of the research.

§ 3.1 Choice-based conjoint analysis

According to Hair et al. (2010), conjoint analysis is frequently used in product improvement and to gain knowledge of the consumer's preferences. Conjoint analysis is a survey-based statistical market research technique. The technique is used in order to infer attribute level preference. The main objective of this technique is to determine which combination of attribute levels is most influential on consumer choice. As this corresponds to the research objective, conjoint analysis is a suitable research technique. To be more specific, a choice-based conjoint analysis will be used. Besides giving more information per respondent (Sawtooth, 2007), this method has several advantages over its alternatives such as rating-based conjoint analysis and ranking-based conjoint analysis. Hair et al. (2010) also concluded advantages of choice-based conjoint analysis. First of all, tradeoffs are enforced since the consumer has to choose between actual products. Furthermore, a choice-setting mimics a real-life situation more as consumers choose between products in real life as well. Moreover, the possibility to include a no-choice option is also possible with choice-based conjoint analysis. This gives the respondent the possibility to choose none of the options when all fictional products are not attractive enough. Lastly, choice is cognitively less demanding than rating and ranking (Louviere 1994). This makes fatigue or boredom less likely to occur.

§ 3.2 Attributes

The first selection of attributes was based on findings in relevant literature. In this paragraph, that selection will be specified towards a definite list of attributes which will be used in this study. This selection will be based on a practical research report of Motivaction (2015). This research report includes a graph (N = 1112) which shows importance of different criteria while investing. It can be used to infer the most important attributes of an investment proposition. The full graph is shown in Appendix A2 but the most important percentages will be discussed below. While the attribute selection process took place, input of discussions with relevant managers was taken into account given the accompanied managerial relevance. Also, the selection is based on criteria set by Hair et. al (2010) for determining suitable attributes in conjoint analysis. These criteria include being relevant for management, realistic levels which could occur in real life, an actual influence on consumer choice, no strong correlation between each other and being clearly defined and understandable for consumers (Hair et al., 2010).

Risk is the first attribute to be included in order to make the survey realistic since every investment proposition must legally include an official risk meter. Furthermore, 31% of investors indicated they found past performance of the fund important (Motivaction, 2015) while choosing their investment proposition which means it influences consumer choice. This indirectly translates towards to the accompanied risk of the fund regarding stability. Secondly, returns are included in the survey as well. According to past research, returns are the main reason for a consumer to invest (Chater et al., 2010). This means it has influence on consumer choice. However, some correlation exists between risk and returns. In theory, these attributes should be combined as one ‘super’ attribute in order to remove this multicollinearity (Hair et al., 2010). Due to practical limitations, this is not possible as in reality risk remains the same while returns keep varying over the course of time. Some degree of correlation exists between attributes but not enough to create a solid super attribute. Furthermore, by creating a super attribute, information might be lost as it would be not 100% certain which aspect of the super attribute is considered most important for consumers. Another solution is to apply prohibitions in the survey. However, too many prohibitions can lead to an imprecise utility estimation. Hence, only two prohibitions will be included in the analysis which will be further explained in § 3.2.2. Brand name is the third attribute to be included in the survey. This attribute is included given its high managerial relevance. Obviously, managers are interested in how their brand reflects towards competitors. The fourth attribute is investment method. The possibility to invest yourself or outsource your investments is important to consumers

with 32% and 19% respectively (Motivaction, 2015) which concludes its influence on consumer choice. Furthermore, the managerial relevance is also high regarding this attribute as Achmea IM has been considering to change her investment method for a while now. Lastly, costs is seen as most the important criterion while choosing an investment proposition with 49% which makes it also influence consumer choice (Motivaction, 2015). Furthermore, costs are always important to include in order to make it realistic. As the above concludes the attribute selection, three potential attributes could not be included in the analysis. The reasoning to not include them will be described next. Distribution channels are believed to have a too high correlation with brand name as the mentioned brands hold a reputation of being a certain channel already. This would cause confusion among respondents if, for example, Centraal Beheer would be presented as a bank instead of an insurance company. This would also represent an unrealistic product. The decision to choose brand name over distribution channel was made based on the managerial relevance of brand name as managers strongly indicated so. However, this indirectly means brand is a super attribute as every brand represents a different channel. Regarding cost disclosure, all costs are already shown as one expense in the survey. Including questions regarding this attribute could also lead to some confusion among respondents. For example, if one attribute would suggest different costs are spread while another attribute displays one percentage for all costs combined, it would lead to a certain degree of inconsistency. Considering the last attribute: the number of funds, it is believed to simply have too little influence on consumer choice to include them in the study based on interviews with management. Table 1 shows all attributes and their respective levels. The decision making regarding levels is shown below table 1. Assumed betas are included per level with level 1 as the base level. Assumed betas can be seen as the expected partworths and indicate the direction of the expected results of the research. They are used to assist with meeting model design criteria which will be further explained in § 3.3.

Attribute	**Level 1**	**Level 2**	**Level 3**	**Level 4**
Risk	1 (0)	4 (-1)	7 (-2)	
Returns	3% (0)	6% (1)	9% (2)	
Brand name	Centraal Beheer (0)	Robeco (1)	Rabobank (2)	
Investment method	Outsourcing (0)	Advice (0)	No help (0)	Robo-advice (0)
Costs	0,5% (0)	1,25% (-1)	2% (-2)	

Table 1: Attributes and their respective levels

Other than setting criteria for attributes, Hair et al. (2010) also defined criteria for attribute levels. This includes being interesting for management, clearly defined and recognizable by respondents, being separated enough from each other, covering the entire

range of existing product possibilities and not being an expected winner in advance. Also, using more levels than necessary is seen as inefficient as more parameters need to be estimated and the complexity for the respondent increases. These attributes should be analyzed somewhat cautious. According to Wittink, Krishnamurthi and Reibstein (1990), these attributes are seen as more important and hence might lead to a distorted image of importance.

§ 3.2.1 Risk

The risk meter included goes from level 1 to level 7. An example is given in Appendix A3. It is important to include the full range of risk levels but including seven attribute levels is too much obviously. Therefore, three levels are included with risk level 1, 4 and 7 which separates the levels from each other enough. It must be mentioned that a low level indicates low risk where a high level indicates high risk. Moreover, since risk level 1 is the lowest risk, this level will receive the highest assumed beta. Consumers prefer having the lowest risk as the possibility to lose their investments will be lowest (Kahneman & Tversky, 1984). By including a picture of the risk meter in the attribute description, the attribute is recognizable and clearly defined.

§ 3.2.2 Returns

First of all, returns are shown in the survey as gross which means no costs are deducted from them. This is considered the regular way to present it in the market according to a competitive analysis which makes it more clearly defined. The actual range of percentages was based on a market research report from Beleggingsmatch (2017) which described the average yearly returns of the largest suppliers of investment propositions in the Netherlands. This attribute consists of three levels: 3%, 6% and 9% of which 9% has, obviously, the highest assumed beta. Given the potential effect of multicollinearity, risk level 1 will not be matched with returns level 3 and risk level 3 will not be matched with returns level 1. This is because those combinations are very unrealistic and it would be unlikely for them to occur in any current real life product.

§ 3.2.3 Brand name

The included brand names are based on managerial relevance. Achmea IM has used these brands in the past as well for different consumer researches. The included brands are: Centraal Beheer, Robeco and Rabobank. The assumed beta's are based on channel preference by Motivaction (2015). Centraal Beheer has lowest preference with 4% since it is an insurance company, Robeco as an investment specialist has moderate preference with 27%

and Rabobank has 47% preference as a bank. By creating levels of brand based on types of channel, brand is considered a super attribute. As a consequence, conclusions regarding this attribute should be done with some degree of caution as it unclear for precisely what reason respondents choose this particular level as it could be because of the brand or type of channel.

§ 3.2.4 Investment method

The type of investment refers to outsourcing your investments, investing under advice, investing on your own or robo-advice. The first three levels are included since these are usually used in the market. The fourth level, robo-advice, is still unfamiliar in the market. It includes advice from chatbots based on investing algorithms with minimal human interaction. Even though including this level makes the attribute consist of four levels which is more than the others, it is still included given the managerial relevance of it. Management is very curious towards the preference of this attribute level. However, some degree of caution should be taking into account while analyzing the attribute importance. Betas of this attribute are set to equal since it is unclear at the moment which level is preferred.

§ 3.2.5 Costs

The levels of costs are, just like returns, based on the research of Beleggingsmatch (2017) in order to maintain a realistic representation and a relevant range. Three levels are used: 0,5%, 1,25% and 2%. Lowest costs are given the lowest beta and highest costs are given the highest beta for obvious reasons. It should be explained in survey that these costs are relative and charged yearly based.

§ 3.3 Design of the study

As all attributes and their levels have been identified and specified, the design of the study can be created. The design consists among others between stimuli and choice sets. A stimulus can be seen as a hypothetical product. When different stimuli are presented to a respondent, it is called a choice set. An optimal design would be full factorial, this includes all possible combinations of attributes levels. However, given the amount of attribute levels, this is not possible as this would result in a total of 324 stimuli per respondent to choose from. A respondent can complete up to 20 choice sets without a decrease in quality (Johnson and Orme, 1996). This means that in order to make a full fractional design work, 16 stimuli per task must be included which seems highly unreasonable. Therefore, a fractional factorial design will be used. In order to still meet an optimal design, four conditions by Huber and Zwerina (1996) should be met. Meeting these criteria provides more useful data per choice set

and respondent. Also, the standard error will be minimized which give the results more precision. The criteria are as follows:

- Level balance: attribute levels occur with equal frequency within a choice set;
- Orthogonality: the levels of any two attributes must occur independently;
- Minimal level overlap: alternatives in a choice set do not share the same attribute level;
- Utility balance: equally attractive alternatives for the respondent in a choice set.

Level balance and orthogonality can be met in this situation by making the number of stimuli divisible by the number of levels for any attribute and making the number of stimuli divisible by the product of the number of levels for any pair of attributes. By using a fractional factorial design with 36 stimuli, these conditions will be met and seems therefore like the most suitable design. It is now important to decide how many stimuli to include per choice set. Too few choice sets would result in too little information and too many choice sets result in fatigue and boredom of the respondents. Respondents can process up to 18-20 bits of information per choice set. By including four stimuli, it would result in too complex choice sets as 21 bits of information will be included per choice set. This makes two and three stimuli per choice set possible options. Sawtooth (2016) advices to include as many stimuli per choice set as possible in order to encourage respondents to provide more thoughtful responses and a stronger estimation of potential interaction effects. Three stimuli will therefore be used per task additionally with a none-choice option. If three stimuli are included with five attributes each and one none-choice option, 16 bits of information are included in each choice set. The no-choice is included as it allows breakdown between primary and secondary demand. Additionally, it increases the effectiveness of market simulations as consumers who will not be interested in the product can be dealt with (Sawtooth, 2016). The choice sets will be simulated using Sawtooth Software. According to Kuhfeld, Tobias, and Garratt (1994), computer-based designs are superior designs compared to classical designs obtained from books or computerized. Additionally to these 12 choice sets, two holdout choice sets are included to check the predictability of the dataset for market simulations (Sawtooth, 2016). Both holdout sets include an investment proposition of Achmea IM. The remaining two stimuli in both holdout sets are based on meeting utility balance, minimal level overlap and level balance. Utility balance is met by utilizing the assumed betas. Every stimuli

in each choice set has the same sum of betas. Minimal level overlap and level balance are met as all levels occur only once per choice set. Minimal level overlap and utility balance are hard to meet in the remaining choice sets of the questionnaire since a random task generation method will be used. This means every respondent receives an unique questionnaire. This may reduce the design efficiency a little but has other advantages such as a larger variety of effects will be measured and the impact of order effects and other context effects will be reduced (Sawtooth, 2016). More specifically, a balanced overlap randomized design will be used. This allows some degree of overlap. It is seen most efficient for both main effects and interaction effects (Sawtooth, 2013). No clear focus on main effects and interaction effects has yet been made hence, balanced overlap will be used. In order to test the efficiency of the model after including prohibitions, the D-efficiency is measured. This summarizes the overall relative precision of the design (Sawtooth, 2016). D-efficiency is tested by simulating random dummy respondent answers for the questionnaire and comparing its strength to the strength of the original design. The simulated data can be found in Appendix A4. The ratio of strengths of two designs reflects the relative D-Efficiency (Sawtooth, 2016). The strength of the original model with 250 respondents, a no-choice expected percentage of 15% and no predefined main or interaction effects is 1139,45267. If the prohibitions described above are included, the strength of the model is 1077,13921. This leads to a D-Efficiency of 94,56%. D-effect size can be defined as a relative value between different models which means this model can predict the utility of each level with 94,56% precision as opposed to the simpler model (Sawtooth, 2013). As prohibitions always decrease the model fitness, it is no surprise the goodness of the model decreases. According to Sawtooth (2016), standard errors within each attribute should be roughly equivalent and standard errors for main effects should be no larger than about 0,05. As can be seen in Appendix A4, this is also the case. This means the model still estimates partworths with high precision and hence, the D-efficiency is considered adequate. Concluding, the model with prohibitions will be used for collecting the data.

§ 3.4 Working method

§3.4.1 Survey

The software Sawtooth Lighthouse Studio is used to design and host the questionnaire. The entire survey is shown in Appendix A5. Before confronting the respondents with any choice set, the attributes included were first briefly explained in order to prevent any confusion. Also, a general description was given first to introduce the respondents with the survey and to give some indication of the objective of the research. Additionally,

demographic questions are included. Respondents are asked how much experience they have with investing in the past, which method they prefer to invest with, through which channel they prefer to invest and how they would gather their information. Also, reasons are measured why respondents would or would not invest. Lastly, respondents are also asked whether they find propositions transparent, believe to be financially literate and whether they are risk averse. The latter three questions are measured on a Likert scale from 1-7. Furthermore, questions are included regarding age, gender, income, education and savings. In order to prevent respondents from not sharing their savings, their relative savings will be asked. This will be done using the following question: "How many times your monthly salary do you have as savings?" In the end, the questions above are included to establish a consumer profile which can be linked to consumer segments after analyzing the data.

§ 3.4.2 Participants

The target group of this research includes potential retail investors and current retail investors and hence consists of consumers in the age group of roughly 20-70, with an income of at least € 20.000,- – € 35.000,- or an education level of at least MBO. Chater et al. (2010) described retail investors to be older, have a higher education and have a higher level of income. Considering age, it would not be possible to gather enough respondents by only including respondents, for example, above 40 years old. Hence, the age minimum is set at 20. Regarding the number of respondents, the current Sawtooth license of Tilburg University allows a maximum of 250 respondents per questionnaire. Having 250 respondents would be considered perfect. However, the minimum amount of respondents can be decided upon by simple formula. $1.000 \leq \frac{nta}{c}$ in which n = respondents, t = tasks, a alternatives per task and c is equal to the largest number of levels for one attribute (Orme, 1998). This leads to a minimum of 112 respondents.

§ 3.4.3 Analysis

As said before, Sawtooth Software is used to design and host the survey. Furthermore, this software is also used in the data analysis. Sawtooth offers different methods of analysis. In this study, Count, Logit and Latent Class will be used. Each of these techniques has its own advantages. Count and Logit have more of an explorative objective. They give a clear overview of the data and hint for any potential interaction effects. However, it is impossible to base a marketing strategy solely this on. Therefore, these techniques will only be used to get familiar with the data. As a follow-up, LCA is used. This technique is more appropriate to base a marketing strategy on since it focusses on segments more specifically as opposed to an

aggregation of all the data. This technique and the decision making regarding it will be further explained in the next chapter. As the data has been collected and analyzed, market simulations can be estimated. This feature is also supported by Sawtooth. By utilizing the collected data, realistic market scenarios can be simulated. All data can eventually be exported to statistical software. This allows for more in depth analyses in which preference data can be linked to demographic data.

Chapter 4: Analysis and Results

This chapter focusses on presenting all data which was gathered from the questionnaires exclusively. In the first paragraph, a description will be given on how the data was prepared. Following, the characteristics of the sample are described. The paragraphs after this will focus on analyzing the data with different statistical techniques. As a result of this, customer segments can be created and identified by linking preference data to demographic data. Finally, market simulations can be estimated by utilizing partworths in order to improve the product.

§ 4.1 Data preparation

178 respondents attempted to complete the survey. 49 of them did not complete the survey and were therefore excluded from the results. This seems like a rather large number. However, 25 of the incompletes did not spend more than 5 seconds in the survey which indicated they perhaps clicked twice or on accident on the link. Taking the previous into account, the survey had a completion ratio of 0,84. Three respondents, however, still finished the first part of the questionnaire but did not fill in the demographic questions. Their data stays valuable for the analysis and will be therefore included. However, they cannot be linked to any segments. All respondents met the age condition. All respondents also had an education of MBO or higher which indicates their education level was average or above average. Some respondents had an income in the category € 0,- - € 20.000,-. However, their respective education level was at all times above average which indicates their income will most likely rise in the near future as they are probably a student at the moment given their age. Hence, these respondents were not excluded. No respondents with remarkable answer patterns or amount of time spent were observed. This eventually leaves 132 respondents for the final analysis. As the rule of thumb indicated a minimum of 112 respondents, 132 is more than sufficient.

§ 4.2 Sample description

Out of the 128 respondents which filled in their gender, 75% were male, 23% were female and 2% were other. The average age was 36. 60% of the respondents indicated they invested before using some kind of investment method. This differentiates significantly from the national average of 13%, as can been in Appendix A6 and some degree of caution should be taken while generalizing the results. This means results of this research do not represent the population but only give an indication of reality. However, this gives a nice equal distribution between investors and savers for the analysis. The respondents indicated to be financial literal with an average score of 4,74 based on a 1-7 Likert scale. They rate transparency of the cost structure of investment propositions with a 3,6 and their own risk aversion with a 3,7 both on a 1-7 Likert scale as well. Furthermore, respondents have a high education in general with 59% of the respondents having a master's degree or postdoc. Also, respondents have a rather high income as 34% respondents are in the € 65.000,- + category. At least 66% of the respondents indicated they would invest mainly because of the extra returns compared to saving. On the opposite site, respondents refrain from investing because of mainly their lack of knowledge and the accompanied risk involved with at least 33% and 36% respectively. Descriptive statistics of all questions are shown in Appendix A6.

§ 4.3 Analysis

In this paragraph, all acquired data will be analyzed and described exclusively. It starts off with two explorative conjoint analyses; Count and Logit. The information acquired using these two analyses will be taking into account while doing the last conjoint analysis; Latent Class. Latent Class analysis will create segments based on preference data. After this, said data will be linked to demographic data in order to identify the segments. Lastly, all acquired knowledge so far will be used in a market simulation in order to estimate market shares and ultimately, to improve the product.

§ 4.3.1 Count

Count Analysis is used as an explorative conjoint analysis in this study. It simply counts every main and 2-way interaction effect in the collected data. In a randomized design such as this, each attribute level is equally likely to occur. Hence, the impact of each level can be assessed by just simply counting the proportion of times stimuli including the level are chosen relative to its total appearances in the survey (Sawtooth, 2016). The significance of main effects can, however, give a distorted image and importance should not be completely inferred from it (Sawtooth, 2016). However, it gives a solid first impression of the most

important levels. According to Count, Risk level 4, Returns level 9% and Costs level 0,5% is the ideal product. Brand and Investment Method are not considered significant. A natural assumption would be concluding Brand and Investment Method have no impact on consumer choice. However, one cannot be completely certain about this as, for example, it might be possible for half of all the respondents to strongly prefer Centraal Beheer and for the other half to strongly prefer Rabobank. This way, the aggregated count will be zero but brand name would still impact consumer choice by a lot. Furthermore, potential interaction effects can be inferred. The output of counting is rather useful for understanding difference in consumer choice while one attribute varies as a function of another. In Appendix A7 the output of all main effects and significant interaction effect of the Counting Analysis can be found. As can be seen in Appendix A7, risk x returns and returns x costs hint to be significant ($p < .01$) for interaction effects. Risk level 4 x returns level 9% and returns level 9% x costs level 0,5% hint to be the most preferred interactions. However, this should not be assumed yet and its usefulness in the analysis should be further tested in a Logit before making any conclusions.

§ 4.3.2 Logit

Just as Count, Logit is used in this study as an explorative analysis. Logit calculates partworths using the aggregated data. A partworth indicates the perceived value of the attribute. Besides main effects, Logit can also calculate interaction effects. Interaction effects should be included manually. However, including too many interaction effects would results in noise and overfitting of the model. Sawtooth (2016) advices to only include interaction effects which improve the model fit which is indicated by log-likelihood. This can be tested by doing the analysis with and without certain interaction terms and to observe which log-likelihood is highest. Regarding which interaction terms to test, it seems most logical to only test the interactions which were hinted to be significant in the Counting Analysis. The output of Logits with and without interaction term(s) can be found in Appendix A8. Four Logit Analyses are included in Appendix A8; one with only main effects, one with the interaction term risk x returns, one with the interaction term returns x costs and one including both interaction terms. In order to calculate whether interaction terms increase the model, the difference in log-likelihood should be measured. The log-likelihood of the model with only main effects is -1707,39215. The log-likelihoods of the model with two interaction terms and risk x returns are -1718,37046 and -1715,64717 respectively. This means the model does not improve as the values of the adjusted models are lower. The model is not improving due most likely to the included prohibitions between risk and returns in the questionnaire. Regarding

returns x costs, the log-likelihood comes down to -1704,36178. This means an increase of 3,03038. In order to test the significance of this model improvement, a 2 log-likelihood test can be conducted (Sawtooth, 2016). Two times the log-likelihood equals the Chi-square which is used to test for a significant decrease in model fit. The model has 12 degrees of freedom given the fact variables are being effect coded which means the last level is dropped and estimated as minus the sum of all other levels. By looking at the accompanied p-value of a Chi-square score of 6 and 12 degrees of freedom, it can be concluded for the p-value to be 0.916082. This means the model does not significantly improve with a confidence level of 95%. As a result of the above, a model with only main effects will be used for further analysis.

To start off, significance of the main effects is calculated using a 95% interval t-test. An attribute can be considered significant if at least one the levels has a t-value of > | 1.96|. Based on this, brand is considered not to be a significant attribute while all other attributes are significant in the aggregated model. The level with the highest partworth can be assumed to be the most preferred level of the attribute. According to the aggregated data, the most ideal product consists of risk level 1, returns 9%, costs 0,5% and outsourced investing with brand being insignificant. The difference in levels define the 'gain' or 'loss' when altering one level in the consumer's stimulus. Interesting to notice is the big difference between risk level 4 and risk level 7. The utility difference between these levels is almost twice as large as the difference between risk level 1 and risk level 4, 1,09 as opposed to 0,61. A big difference is also seen at returns. The difference between 3% and 6% is also almost twice as large as the difference between 6% and 9%, 1,81 as opposed to 0,97. The none-option has a partworth of -0,55. This means any product introduced at the market must exceed this number in order to be interesting for consumers. Furthermore, by dividing the range in absolute value by the sum of all ranges, the attribute importance can be measured. Appendix A8 shows the respective importance per level. Returns is declared as the main influencer on consumer choice with 47%. It was expected for this attribute to be most important. Risk and costs are following with 29% and 18% respectively. Investment method and brand have 4% and 2% importance respectively. As investment method consisted of more level than average, this relative importance might not be completely accurate (Wittink, Krishnamurthi and Reibstein, 1990).

§ 4.3.3 Latent Class Analysis

Instead of an aggregation of all data, Latent Class Analysis assigns respondents into segments having similar preferences based on their choices in the questionnaire (Sawtooth,

2016). By using segments, heterogeneity among respondents will be considered in the analysis. It utilizes an algorithm which simultaneously estimates partworths for each segment and the probability that each respondent belongs to that particular segment. The most important question to answer in Latent Class is how many segments to include in the model. Adding segments increases the model fit by construction but does, unfortunately, increase the model complexity as well (Sawtooth, 2007). The managerial value is also decreased by increasing the amount of segments as it is difficult to interpret and translate these segments into practice. When deciding upon the number of segments, it is essential to look at relative differences in statistics (Sawtooth, 2013). Log-likelihood, Pct Cert and Chi-Square need to be as high as possible as they increase the model fit. As can be read in Appendix A9, they increase a lot until reaching a 3-segment model. From a 3-segment to a 4-segment model, it only increases by a bit. The same pattern can be seen while going from a 4-segment model to a 5-segment model. When considering the IC formulas less value means a better model fit (Sawtooth, 2016). CAIC and BIC hint more towards a 4-segment model since both IC's have the lowest value at this model size. However, AIC and ABIC hint more towards a 3-segment model as the decrease reaches a peak in volume at this point while disregarding it reaching an ultimate low at a 5-segment model. Based on the managerial importance of having few segments, the decision has been made to choose a 3-segment model over a 4-segment model. It is also important to make sure segments are large enough in order to be actionable. A rule of thumb is for the segments to contain at least 10% of the total population. Segment sizes vary from 12% to 50.4% so this condition is also met. All statistics regarding the model fit are shown in Appendix A9. The attribute importance per segment is shown in table 2. This is calculated by utilizing the absolute range in attributes once more. Based on partworths per segment and attribute importance, a first selection of segments can be named. This will be further analyzed in the next subparagraph by including demographic data. As opposed to Logit and Count, all attributes are considered to have a significant effect on consumer choice in each segment. This can be explained by homogeneity within the aggregated data and heterogeneity across segments. For example, the utility of each brand was close to 0 in the Logit. However, the utilities in each segment have a strong preference towards one particular brand which explains the insignificance in the aggregated data. Lastly, as said before, the relative importance of investment method might be slightly inaccurate given its fourth attribute level (Wittink, Krishnamurthi and Reibstein, 1990).

Attribute	**Importance segment**	**Importance segment**	**Importance segment**

	1	2	3
Risk	10%	16%	39%
Returns	53%	32%	35%
Brand name	6%	10%	4%
Investment method	5%	17%	11%
Costs	26%	25%	11%
Total	100%	100%	100%

Table 2: Importance per attribute per segment in a 3-segment model

§ 4.3.3.1 Identifying segments

Based on preference, three segments are created. Respondents' preference in each segment is described below. Additionally, segments are also described by linking demographic data. This way, a consumer profile for each segment can be established and unobserved responses can be classified in segments. Cross tabs of all questions to which will be referred are found in Appendix A9. The following questions[7] are significantly ($p<0.05$) different between segments: Education, Income, Q7 Experience with investing: I have created my own investment portfolio & I have never invested before, Q8 Channel preference: Other, Q10 Reasons to invest: Specific financial goal, Not needing the money on short term & I do not invest, Q11 Reasons to not invest: No trust in the market, Q12 Important sources playing a role while investing: External advisor & Other, Q14 Financially literate and Q15 Risk aversion. Non-significantly different questions will only be used to describe the segment.

Segment 1 is referred to as *the experienced risk takers* segment and has a size of 37,6%. Their ideal attribute level combination consists of 9% returns, 0,5% costs, level 1 risk, Robeco and investing under advice. Considering the relative importance, returns is most important with 53% followed up by costs with 26%. The none-option also has the lowest utility of all three segments which indicates this segment has the strongest intention to invest through a proposition in general. The remaining three attributes are considered not as important. The average age in this segment is 37, 76% is male, 70% has a master's degree or postdoc and 50% has an income level of more than € 65.000,-. This segment was also significantly most aware of how many times they need their savings as a buffer. 64% had a buffer in mind. Not surprisingly, this segment also include experienced investors as 74% indicated to have invested in the past. Reasons to invest are acquiring more returns with their assets with 78% but also because they do not need their assets on short term with 42% which was significantly highest. Lastly, this segment has significantly the lowest average risk

[7] As questions 7, 8, 10, 11 and 12 had multiple answers, significance was calculated per checked box instead of the entire question.

aversion of 3,08 and rated itself significantly highest regarding financially literacy with an average score of 5,18 on a Likert scale from 1-7.

Segment 2 is the smallest segment in this study with a size of 12% and is referred to as *the entrepreneurs*. Their ideal attribute level combination consists of 9% returns, 0,5% costs, level 1 risk, Rabobank and investing on their own. All attributes have a rather equal spread importance with exception of returns being the dominating attribute with 32% preference. This segment has a really strong preference to invest on their own. However, this segment has a high none-option partworth. This means products must reach a really high partworth in order for it to be attractive in this segment. Furthermore, they have a really strong preference towards the lowest costs and it is the segment with the strongest preference towards a brand. Interesting to notice is a strong distinction from segment 1 between two levels of brand. Segment 2 prefers Rabobank most with a negative utility towards Robeco while segment 1 has a positive utility towards Robeco with negative a utility towards Rabobank. This segment has an average age of 41. 87,5% of this segment indicated to have invested in the past which is significantly highest. Compared to segment 1, this segment is a more cautious investor which can be inferred from their relative importance towards risk of 16% and their average risk aversion of 3,53 which significantly higher than segment 1. It is expected for this segment to invest, but in a different way than an investment fund. Most likely, they prefer to buy their own stocks. This segment is also financially literate which an average score of 5,13 but significantly less than segment 1.

Lastly segment 3 will be referred as *the careful beginners* and is the largest segment with a size of 50,4%. Their ideal attribute level combination consists of 9% returns, 0,5% costs, level 1 risk, Rabobank and outsourcing their investments. This segment has a really high relative importance towards risk with 39%. It is the only segment in which returns is not the dominating attribute but only a close second with 35% relative importance. This segment also prefers the lowest risk more than the highest returns based on partworths. More surprisingly, costs is also less important than in other segments. This segment has an average age of 34 and 32,26% of this segment is female. Not surprisingly, 57,81% of this segment has not invested before. Too big of a risk is given as the main reason for 45,31% of this segment to not invest at all followed up by having insufficient knowledge with 39,06%. For questions regarding savings needed as a buffer in order to invest or when to invest their assets they mostly indicated to have no real preference for an answer with respective percentages of 57,14% and 32,81%. This might mean that they have not really given investing any thoughts.

If they invest, 32,81% prefers to acquire advice from an external investment advisor which is significantly more than the other segments. This risk aversion, as described above, is also indicated by themselves with an average score of 4,24 which is significantly the highest. Their financial literacy is also significantly lowest with 4,26.

§ 4.3.4 Market simulation

A market simulation utilizes all respondent data to review certain proposed product concepts in competitive scenarios. Just analyzing partworths is not enough for an effective marketing strategy as competitors' offerings must be taken into account as well. Different incentives to conduct market simulations exist. In this scenario, product amelioration is the goal of the simulation. Product amelioration means modifying an existing product in order to make it more profitable or capture more market share. Given the managerial relevance of this research, the latter objective will be attempted to achieve using the simulation.

To decide upon the predictability of the dataset, it is recommended to compare the outcome of the holdout tasks to market simulations in order to test the accuracy of the dataset. It is advised to base your simulation on LCA (Sawtooth, 2016). The comparison can be found in Appendix A10. The LCA dataset predicts the holdout rather well as results only differentiate on average with 2% from each other. Hence, this dataset is adequate to be used in the Choice Simulator. Since brand names are included in the conjoint analysis, the simulation is limited to only using these particular brands. Selected products in the market simulation are based on a summary by Beleggingsmatch (2017) of offered funds by each respective brand. A Randomized First Choice simulation method will be used. This method is most realistic as, among others, a factor of randomness is added to partworths instead of just assuming consumers will buy the product with the highest partworth (Sawtooth, 2016). The input for the simulation can also be found in Appendix A10. Since risk, returns and costs are continuous variables, integer levels are not mandatory to be inserted in the simulation. This means the simulation can be made more precise which is convenient as products only differ from each by a small margin in risk, returns and costs. For example, costs of 0,65% can be inserted as Cost level 1,2 instead of rounding down to 1. Considering investment method, Centraal Beheer and Robeco offer investing on your own while Rabobank offers outsourcing currently. Preference data per segment can be found in table 3 which shows the current market situation. Centraal Beheer is most dominant within segment 1. However, in total they are not since Rabobank is dominating in segment 3 by a large margin. In segment 2, the none-option is most dominant followed by Centraal Beheer.

Shares of preferences | Current situation				
Label	**Total**	**Segment 1**	**Segment 2**	**Segment 3**
Centraal Beheer	39,12 %	51,58 %	40,85 %	29,27 %
Rabobank	44,17 %	35,51 %	4,06 %	60,45 %
Robeco	5,83 %	10,54 %	0,19 %	3,63 %
None	10,88 %	2,36 %	54,90 %	6,65 %

Table 3: Share of preferences in current market situation

The objective of this simulation is to increase the market share of Centraal Beheer. A logic assumption would be alternating attributes in order to increase this market share while being realistic. With regard to making realistic changes, an investment product is different from a traditional product hence product amelioration is also different in this situation as some attributes are rather difficult to change. Considering risk and returns, these attributes are not changed easily since Centraal Beheer is investing in funds which are held by an external international party of who is quite difficult to replace. Moreover, returns are also rather uncertain and can never be predicted with 100% accuracy. Regarding the costs of Centraal Beheer, these have been lowered for the last period and are, according to Beleggingsmatch (2017), the lowest in the market. Lowering these costs even more would be considered a difficult objective. Furthermore, changing brand seems almost impossible for obvious reasons of course. This leads to changing the investment method. As was concluded in § 4.3.3, the third segment preferred outsourcing their investments most. By changing investing on your own to outsourcing, some rather positive results regarding market share can be measured. Table 4 shows the shares of preferences for the adjusted product.

Shares of preferences | Outsourcing investments				
Label	**Total**	**Segment 1**	**Segment 2**	**Segment 3**
Centraal Beheer	45,44 %	50,58 %	13,76 %	49,22 %
Rabobank	32,35 %	29,52 %	8,34 %	40,30 %
Robeco	9,09 %	17,28 %	1,47 %	4,73 %
None	13,13 %	2,62 %	76,43 %	5,75 %

Table 4: share of preference in ideal market simulation

The share of preference remains almost unchanged for Centraal Beheer segment 1. Centraal Beheer loses a rather large market share in segment 2. However, in the original situation the None-option was most dominant already with Centraal Beheer being runner-up and therefore, nothing really changes. Moreover, this segment was also smallest so losing market share in this segment matters least. Most importantly, Centraal Beheer grows with a relative value of 68,16% in the largest segment to become market leader while Rabobank lowers with a relative value of 33,33% market share in segment 3. Ultimately, Centraal

Beheer increases her total market share with a relative value of 16,16% by changing her investment method. Considering switching to robo-advice, Centraal Beheer decreases in market share in both segment 1 and 2 but increases in segment 3. Ultimately, having a market share of 35,60%. Regarding investing under advice, Centraal Beheer increases her market share to a total of 43,62%. Centraal Beheer increases in segment 1 and 3 but decreases in segment 2. Investing under advice can be seen as the alternative product improvement. Both outputs can be found in Appendix A10.

Chapter 5: Conclusions and Recommendations

The final chapter of this thesis includes a general conclusion of this study, reflection of the findings to existing literature, recommendations for Achmea IM or investment management companies in general, limitations of this research and topics for future possible research.

§ 5.1 Conclusion

The goal of this research is to provide an answer to the problem statement: *"Which attributes of a retail investment proposition influence the choice of different consumer segments to invest through an investment manager?"*

In order to provide an answer to this statement, consumer behavior and important attributes have been identified as a result of literature review and desk research at first. This eventually led to a conjoint analysis which included the following attributes: returns, risk, costs, brand and investment method. A Logit Analysis revealed insignificant influence of brand on consumer choice in the aggregated dataset. Returns has most influence on consumer choice followed by risk, costs and investment method respectively. However, results of the aggregated dataset are not enough in order to answer the problem statement. Hence, a Latent Class Analysis was done. This analysis identified three segments. In the LCA, all attributes in every segment were significant to have influence on consumer choice. Based on their preference and demographics, they were giving the following names: *the experienced risk takers, the entrepreneurs* and *the careful beginners*. The experienced risk takers consist of 37,6% of the sample and give importance to mainly two attributes: returns and costs. Other attributes were not as relevant to them. The none-option had a very low partworth which indicated this segment has a strong preference towards an investment proposition in general. The second segment, the entrepreneurs, consist of 12% of the dataset and are somehow comparable to the first segment as they also have experience with investing. However, this

segment has a strong preference towards a specific investment method namely, investing on your own. This segment has an extreme high none-option partworth which makes it not very likely to invest through an investment proposition. Also, returns are less dominant in this segment. Attribute importance is somewhat more equally spread. Lastly, the careful beginners consist of 50,4% of the dataset and are mostly current savers. Most of this segment has not invested before. They have a strong preference towards risk followed up closely by returns. Investment methods which they prefer are outsourcing and investing under advice. Costs and brand were not considered as important to this segment. Their none-option partworth is still a negative number which makes this segment likely to invest through an investment manager.

§ 5.2 Discussion

Existing research divided retail investors into roughly two segments: investing on their own or investing through an investment manager / acquires investment advice (AFM, 2015). This study confirms these two segments of retail investors exist. According to the demographic data, many noticeable demographical differences, apart from financial literacy, risk aversion and experience with investing, do not exist across these segments. This study does however expand knowledge of the above by giving difference in preference data between segments and the reasoning behind choosing the investment method. This study shows a strong distinction between a segment that strongly prefers investing on their own and a segment which has no clear preference towards a specific investment method. An explanation for segment 1 having no clear preference for a specific investment method could be because of their strong focus on costs and returns exclusively which means they disregard all other aspects (Chater et al., 2010). Returns are the main reason for consumers to start investing. However, while investing, returns is not the most important attribute for segment 3. This segment still values risk as more important than returns which is an interesting effect. It is believed for a potential investor's risk aversion to decrease when he or she starts investing as current retail investors give more importance towards returns than risk. This is based on a difference in the importance of risk and investing experience between the other segments as segment 1 & 2 value returns more important than risk. This difference can be explained by the fact investors are getting more familiar with investing and hence with the accompanied risk as consumers base their risk aversion on their personal situation (Barber & Odean, 2013). Lastly, according to Bernard et al. (2008), structured products are popular among retail investors since many of them provide an almost guaranteed return combined with a limited amount of participation. This study suggests structured products, such as an investment fund, are popular

among two of the three segments for partially different reasons than existing literature suggests. Segment 1 prefers structured products simply because they offer, in some cases, the highest returns with the lowest costs. As seen in the analysis, this segment mostly cares about those two attributes. Regarding segment 3, they invest using structured products because of the investment method and the lowered risk as they have a high importance to risk and indicate to have insufficient knowledge of investing. Additionally to guaranteed returns and a limited amount of participation, highest returns and lowest can also be a reasons for retail investors to buy a structured product. This can be explained as Chater et al., (2010) suggests returns to be the most important reason to invest while costs being the most compared attribute among different investment propositions.

§ 5.3 Recommendations

As a result of the analysis, three segments were identified. Practical implications regarding these three segments will be discussed. This paragraph answers the last empirical research question. First of all, segment 1 consists of the experienced investors who do not really care how they invest as long as the returns are high and the costs are low. This segment consists mainly of current retail investors which is in theory the ideal target group. However, given the fact switching costs are relatively high and propositions itself can be seen as rather homogeneous products, this segment might be hard to convince to switch investment management companies. Nevertheless, it is still considered as an important segment. Achmea IM should increase her marketing communication activities and position itself as an investment manager with high returns and low costs in particular as the product is already best in the market for this target group according to the market simulation. Additionally, regarding costs more specifically, Achmea IM should promote the results of the research of Beleggingsmatch (2017) which gives evidence of Centraal Beheer being the cheapest in the market. Regarding segment 2, Achmea IM should not really make any major efforts to convince this segment. Even though this segment consist of investors as well, it is the smallest segment and has a really high preference towards investing on their own. It is expected for this segment to buy their own stocks instead of investing in a fund for example. Lastly, segment 3 consists of potential investors and should be the focus of Achmea IM. This segment might have some intentions to invest but were not really convinced. This is mostly due to the expected accompanied risk of investing. This perceived risk should be minimalized by Achmea IM in order to be attractive for this segment. As seen in the market simulation, Achmea IM's market share increases by a large amount in this segment by switching

investment methods. Ideally, it should be changed to outsourcing. If not possible, investing under advice is also a possible solution. By giving more attention to potential investors in the investment process by changing investment methods, they might be reassured and more inclined to invest. Also, the two largest reasons to refrain from investing will be removed: too little knowledge about investing and the accompanied risk. By including this in Centraal Beheer's marketing messages, an external event can be simulated which causes the consumer to invest (Chater et al., 2010). Even though this change in investment method has a lot of influence on segment 3, it barely influences consumer demand in segment 1 in a negative way which makes it the most adequate overall product improvement.

§ 5.4 Limitations and Future Research

At the start of this research, it was expected for Centraal Beheer's panel to be available. Unfortunately, this was eventually not possible. This resulted in the student to acquire respondents out of his own network including colleagues which ultimately led to a smaller sample size than expected. This small sample size was still enough to do the analysis but too small for the findings to be generalized. This also resulted in the sample not representing the population. Some bias also occurred as colleagues might show some preference towards Centraal Beheer. However, Centraal Beheer eventually was not in any segment the most preferred level. Moreover, brand name was mainly included because of its high managerial relevance but eventually it turned out not really valuable in the conjoint setting. This resulted in including an attribute which did not have a high influence on consumer choice and caused an unnecessary increase in complexity for the respondents. Also, including brand by just brand name in conjoint analysis might reflect an unrepresentative view of reality. This is because it is unlikely for this attribute to have such a low attribute importance in a homogeneous product. Including brand needs to be shown differently in future questionnaires than just by brand name only. This can be done by including more information about the respective brand such as type of channel or maybe some degree of service level in the introduction of the questionnaire.

Furthermore, according to Hair et al. (2010), consumers only react in terms of profiles. This leads to an unexplored area of qualitative nature. This means respondents in segment 3 might not invest at all despite having a negative partworth. Even though this is seen as a limitation in this research, it leads to opportunities for future research. For example, according to Chater et al. (2010), the majority of savers start to invest because of a certain event in life. An experiment could be done towards the decision making process of this segment while this

particular event occurs. This leads to better understanding of why and when savers start investing and the best way possible way to simulate this event. Lastly, a prohibition in the model design had to be included given the multicollinearity between risk and returns. This has led to a small decrease in model efficiency. Although in this setting including the prohibition was necessary and did not have any rigorous effects, it is still better to prevent this situation from occurring in future models by making different attribute selection considerations by, for example, creating a super attribute.

References

Aaker, D.A. (1991), Managing Brand Equity, The Free Press, New York, NY.

Adamowicz, W., Louviere J., Williams, M. (1994). Combining Revealed and Stated Preference Methods for Valuing Environmental Amenities. *Journal of Environmental Economics and Management*, 26, 271-292.

AFM (2017) *Essentiële beleggersinformatie (Ebi)* retrieved from https://www.afm.nl/nl-nl/consumenten/themas/advies/verplichte-info/ebi.

AFM Consumentenmonitor, 2016. "Beleggers." retrieved from https://www.afm.nl/nl-nl/nieuws/2016/sep/consumentenmonitor-beleggen-voorjaar.

AFM Consumentenmonitor, 2015. "Belangrijke inzichten over zelfstandige beleggers" retrieved from https://www.afm.nl/nl-nl/consumenten/nieuws/2015/dec/eob-rapport.

Agnew, J. & Szykman, L. (2005). Asset Allocation and Information Overload: The Influence of Information Display, Asset Choice and Investor Experience. Journal of Behavioral Finance, 6, 57-70.

Barberis, N. (2013). Thirty years of prospect theory in economics: a review and assessment. Journal of Economic Perspectives, 27, 173-196.

Barber, B. & Odean, T. (2013). The Behavior of Individual Investors. *Handbook of the Economics of Finance*, 1533–1570.

Barber, B. M., & Odean, T. (2000). Trading is hazardous to your wealth: The common stock investment performance of individual investors. *Journal of Finance*, 55, 773–806.

Barber, B., Odean, T. and L. Zheng. (2005) Out of Sight, Out of Mind: The Effects of Expenses on Mutual Fund Flows. *Journal of Business*. 78, 2095-2119.

Beleggingsmatch, 2017. "Strijd om belegger barst los | Onderzoek periodiek beleggen 2017" retrieved from https://www.beleggingsmatch.nl/onderzoek-strijd-om-periodieke-belegger-barst-los.

Benartzi, Shlomo, and Richard H. Thaler. 1995. Myopic Loss Aversion and the Equity Premium Puzzle. *Quarterly Journal of Economics*, 110, 73-92.

Bernard, Carole and Boyle, Phelim P. and Gornall, Will, (2009). Locally-Capped Investment Products and the Retail Investor. *Journal of Derivatives*, 18, 72-88.

Bhattacharya, U., Hackethal, A., Kaesler, S., Loos, B. & Meyer, S. (2012). Is Unbiased Financial Advice To Retail Investors Sufficient? Answers from a Large Field Study. *Review of Financial Studies*, 25, 975-1032.

Blackrock (2015) "Global Investor Pulse Nederland" retrieved from https://www.blackrock.com/nl/particuliere-beleggers/literature/brochure/blackrock-investor-pulse-netherlands-edition-four-nl.pdf.

Carlin, B.I. (2009) Strategic Price Complexity in Retail Financial Markets. *Journal of Financial Economics*. 91, 278-287.

Chater, N., Huck, S. & Inderst, R. (2010). Consumer decision-making in retail investment services: a behavioural economics perspective. (Final report, http://ec.europa.eu/consumers/archive/strategy/docs/final_report_en.pdf).

Cialdini, R. B. (1993). Influence: The psychology of persuasion. New York, NY: HarperCollins.

Cialdini, R. B. and N. J. Goldstein. 2004. Social Influence: Compliance and Conformity. Annual Review of Psychology 55, 591-621.

ESMA (2012). MiFID Supervisory Briefing. Appropriateness and execution-only. ESMA/2012/851 retrieved from http://www.esma.europa.eu/system/files/2012-851.pdf.

Elliott, W. B., Hodge, F. D., & Jackson, K. E. (2008). The association between nonprofessional investors' information choices and their portfolio returns: The importance of investing experience. *Contemporary Accounting Research*, 25, 473-498.

Gerhard, P., Hoffmann, A. O. I. and Post, T., (2017). Past Performance Framing and Investors' Belief Updating: Is Seeing Long-Term Returns Always Associated with Smaller Belief Updates? Retrieved from https://ssrn.com/abstract=2607521.

GfK (2017). Waar blijven de (nieuwe) beleggers? Retrieved from http://www.gfk.com/nl/insights/news/waar-blijven-de-nieuwe-beleggers/.

Greenwood, R. & Shleifer, A. (2014). Expectations of returns and expected returns. Review of Financial Studies, 27, 714-716.

Green, P. E., Srinivasan, V. (1990). Conjoint Analysis in Marketing: New Developments with Implications for Research and Practice. *Journal of Marketing*, 54, 3-19.

Green, P. E., Krieger, Abba M., Wind, Yoram. (2001) Thirty Years of Conjoint Analysis: Reflections and Prospects. *Institute for Operations Research and the Management Sciences*, 31, 56-73.

Grinblatt, M., & Keloharju, M. (2009). Sensation seeking, overconfidence, and trading activity. Journal of Finance, 64, 549–578.

Guiso, L., Sapienza, P. and L. Zingales. 2008. Trusting the Stock Market. Journal of Finance 63, 2557-2600.

Hair, J.F., Black, W.C., Barry, B.J., Anderson, R.E. (2010) *Multivariate Data Analysis.* Pearson.

Hoffmann, A. & Shefrin, H. (2014). Technical analysis and individual investors. *Journal of Economic Behavior and Organization*, 107, 487-511.

Huber, J., Zwerina, K., (1996) The Importance of Utility Balance in Efficient Choice Designs. *Journal of Marketing Research*, 33, 307-317.

Johnson, E., J., & Goldstein, D. (2003) Do Defaults Save Lives? *Science*, 302, 1338-1339.

Johnson, R.M. and B.K. Orme (1996), "How Many Questions Should You Ask In Choice-Based Conjoint Studies?," Sawtooth Software Technical Paper.

Kahneman, D. & Tversky, A. (1973). On the Psychology of Prediction. *Psychological Review*, 80, 237-51.

Kahneman, D. & Tversky, A. (1984). Choices, values, and frames. *American Psychologist*, 39, 341-350.

Kahneman, D. (2003). Maps of bounded rationality: Psychology for behavioral economics. *American Economic Review*, 93, 1449–1475.

Knab. (2015, April 13) *Knab wil naast spaarder ook de nieuwe belegger als klant* retrieved from https://www.knab.nl/pers/knab-naast-spaarder-ook-nieuwe-belegger-klant.

Knez, P.; Smith, V. L.; and Williams, A. W. 1985. Individual rationality, market rationality and value estimation. American Economic Review: Papers and Proceedings, 75, 397-402.

Kotler, P. & Keller, K. (2011). Marketing management. Upper Saddle River: Prentice Hall.

Kuhfeld, W.F.,Tobias, R.D., and Garratt, M. (1994). Efficient Experimental Design with Marketing Research Applications. *Journal of Marketing Research*, 31, 545-557.

Kumar, A., Lee, Charles M.C.. (2006) Retail Investor Sentiment and Return Comovements. *Journal of Finance*, 61, , 2451-2486.

Laibson, D. (1997). Golden eggs and hyperbolic discounting, *Quarterly Journal of Economics*, 112, 443-477.

Linciano, N. & Soccorso, P. (2012). Assessing investors' risk tolerance through a questionnaire. CONSOB Discussion Paper.

Lyengar, S.S. & Lepper, M.R. (2000) When choice is demotivating: Can one desire too much of a good thing? *Journal of personality and social*, 79, 995-1006.

Orme, B. (2010) Getting Started with Conjoint Analysis: Strategies for Product Design and Pricing Research. Second Edition, Madison, Wis.: Research Publishers LLC.

Madrian, B.C. & Shea D.F. (2001). The Power of Suggestion: Inertia in 401(k) Participation and Savings Behavior, *Quarterly Journal of Economics*, 116, 1149-1525.

McKenzie, C. & Liersch, M. (2011). Misunderstanding savings growth: implications for retirement savings behavior. *Journal of marketing research*, 48, 1-13.

Meyer, S., Urban, L. & Ahlswede, S. (2015). “Does Feedback on Personal Investment Success Help?” (SAFE Working Paper Series 157). Retrieved from http://ssrn.com/abstract=2616294.

Motivaction (2015) “Pricing BeleggersGiro”. Research commissioned by Centraal Beheer.

Nickerson, R.S. (1998) Confirmation Bias: A Ubiquitous Phenomenon in Many Guises. *Review of General Psychology*. 2, 175-220.

Orme, Bryan. (1998) “Sample Size Issues for Conjoint Analysis Studies.” Retrieved from https://pdfs.semanticscholar.org/a696/a7f303fba91009aaaf1fb2db8c730f39ea05.pdf.

Rooij, M. van, Lusardi, A. & Alessie, R. (2011). Financial literacy and stock market participation. *Journal of Financial Economics*, 101, 449-472.

RTLZ. (2017) “Spaarrente afgelopen jaar gehalveerd.” Retrieved from https://www.rtlz.nl/finance/personal-finance/spaarrente-afgelopen-jaar-gehalveerd

Sawtooth Software. (2002) “How Many Questions Should You Ask in Choice-Based Conjoint Studies?” Retrieved from https://pdfs.semanticscholar.org/a6b5/d4fe2cf43b47db3e46e4974c05616ca2b93a.pdf.

Sawtooth Software. (2007) “Latent Class v4.7”.

Sawtooth Software. (2009) “Formulating Attributes and Levels in Conjoint Analysis.” Sawtooth Software, Inc.

Sawtooth Software. (2013) “The CBC System for Choice-Based Conjoint Analysis.” Retrieved from https://www.sawtoothsoftware.com/download/techpap/cbctech.pdf.

Sawtooth Software. (2016) “Lighthouse Studio Manual” retrieved from http://www.sawtoothsoftware.com/help/lighthouse-studio/manual/.

Sawtooth Software (2016) “Choice Simulation Sawtooth Manual”.

Schroff, Sebastian, Meyer, Stephan, Burghof, Hans-Peter. (2013) Retail investor information demand – speculating and investing in structured products. *European Journal of Finance.* 21, 1063-1085.

Strahilevitz, M., Odean, T., & Barber, B. (2011). Once burned, twice shy: How naïve learning, counterfactuals, and regret affect the repurchase of stocks previously sold. *Journal of Marketing Research*, 48, 102–120.

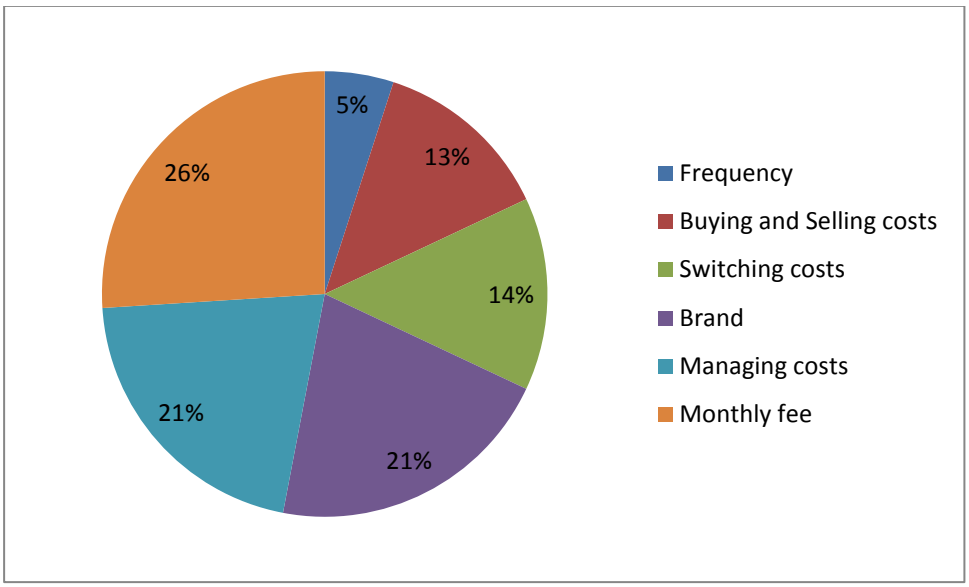
Wittink, D.R., Krishnamurthi, L. and Reibstein D.J. (1990) The effect of differences in the number of attribute levels on conjoint results. *Marketing Letters*, 1, 113-123.

Zeniya, K. 2005. Dynamism in Reforming Financial Product Distribution Channels in the United Kingdom, http://www.nri.co.jp/english/opinion/papers/2005/pdf/np200595.pdf.

Appendix

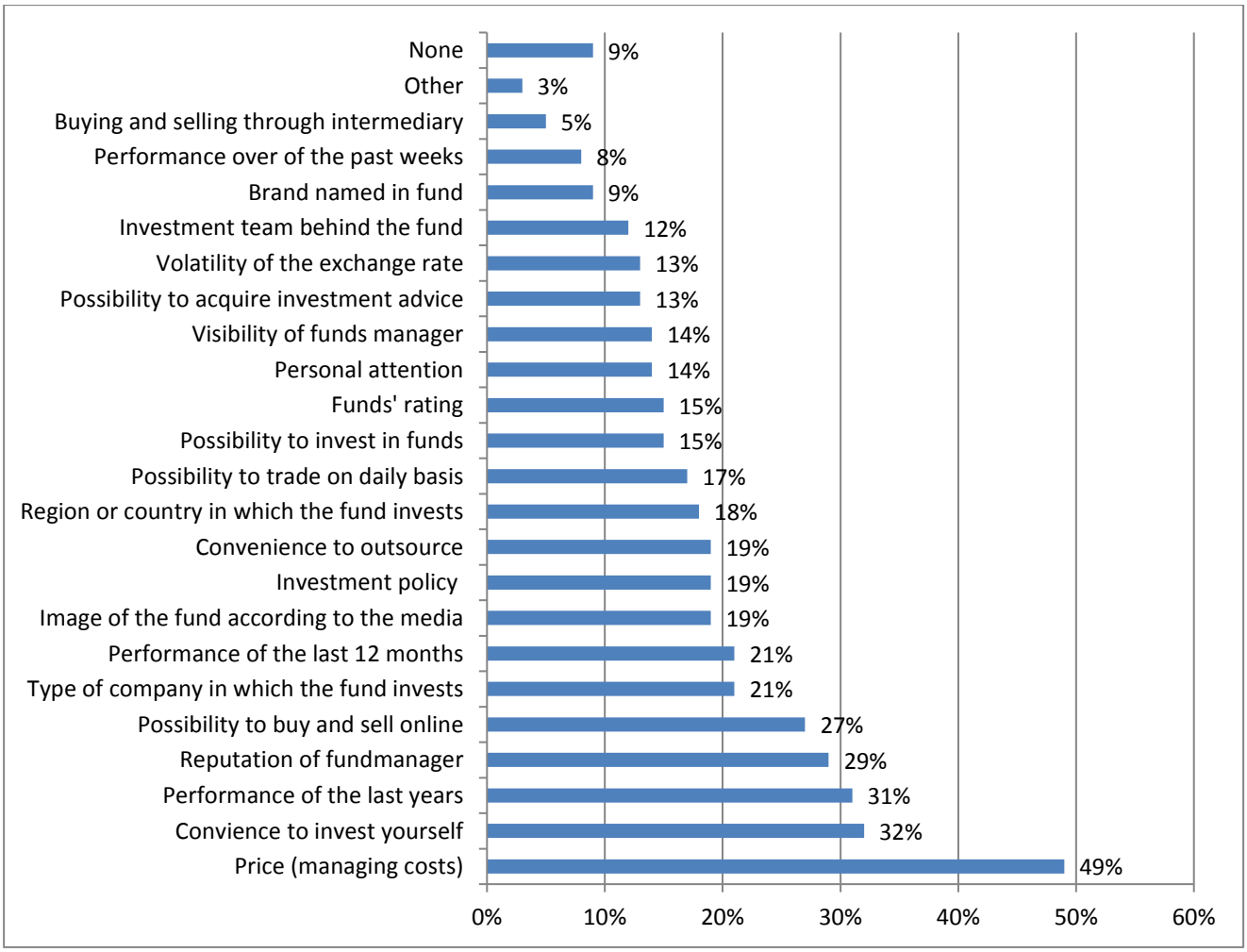
A1 Conjoint Analysis pricing

Motivaction research "Pricing Beleggersgiro" commissioned by Centraal Beheer at April 2015. The following graph shows the results of a conjoint analysis which exclusively focused on price and brand. Percentages indicate the relative importance. All costs were explained to the respondents before answering the questionnaire. The graph is translated from Dutch to English.



A2 Important investment criteria

Motivaction research "Pricing Beleggersgiro" commissioned by Centraal Beheer at April 2015. Current and potential investors was asked which criteria play an important part while making the decision of choosing their investment supplier (N=1.112). The graph below is translated from Dutch to English.



A3 Example Essential investors information

"Do not take unnecessary risk."

← "smaller risk usually lower returns" → "Higher risk usually higher returns"

"Read the essential investors information."

"This is a mandatory announcement"

A4 Model strength

```
CBC Design: Preliminary Counting Test
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Task generation method is 'Balanced Overlap' using a seed of 1.
Based on 300 version(s).
Includes 3600 total choice tasks (12 per version).
Each choice task includes 3 concepts and 5 attributes.


Att  Lev     Freq  Level
 1    1      3600  1
 1    2      3600  4
 1    3      3600  7

 2    1      3600  2%
 2    2      3600  6%
 2    3      3600  10%

 3    1      3599  0,5%
 3    2      3600  1,25%
 3    3      3601  2%

 4    1      3601  Centraal Beheer
 4    2      3599  Robeco
 4    3      3600  Rabobank

 5    1      2699  Uitbesteden van beleggingen
 5    2      2700  Beleggen onder advies
 5    3      2700  Eigen beleggingsportefeuille samenstellen
 5    4      2701  Robo-advies


Two-Way Frequencies
-------------------------------------------------------------------
Att/Lev        1/1       1/2       1/3       2/1       2/2       2/3       3/1       3/2       3/3       4/1       4/2       4/3       5/1       5/2       5/3       5/4
1/1            3600         0         0      1200      1200      1200      1198      1201      1201      1198      1202      1200       900       900       899       901
1/2               0      3600         0      1200      1201      1199      1202      1199      1199      1201      1199      1200       898       901       901       900
1/3               0         0      3600      1200      1199      1201      1199      1200      1201      1202      1198      1200       901       899       900       900
2/1            1200      1200      1200      3600         0         0      1199      1200      1201      1201      1199      1200       901       899       900       900
2/2            1200      1201      1199         0      3600         0      1199      1202      1199      1200      1199      1201       899       899       901       901
2/3            1200      1199      1201         0         0      3600      1201      1198      1201      1200      1201      1199       899       902       899       900
3/1            1198      1202      1199      1199      1199      1201      3599         0         0      1200      1199      1200       900       899       899       901
3/2            1201      1199      1200      1200      1202      1198         0      3600         0      1200      1199      1201       899       901       899       901
3/3            1201      1199      1201      1201      1199      1201         0         0      3601      1201      1201      1199       900       900       902       899
4/1            1198      1201      1202      1201      1200      1200      1200      1200      1201      3601         0         0       899       901       900       901
4/2            1202      1199      1198      1199      1199      1201      1199      1199      1201         0      3599         0       900       900       900       899
4/3            1200      1200      1200      1200      1201      1199      1200      1201      1199         0         0      3600       900       899       900       901
5/1             900       898       901       901       899       899       900       899       900       899       900       900      2699         0         0         0
5/2             900       901       899       899       899       902       899       901       900       901       900       899         0      2700         0         0
5/3             899       901       900       900       901       899       899       899       902       900       900       900         0         0      2700         0
5/4             901       900       900       900       901       900       901       901       899       901       899       901         0         0         0      2701



Logit Efficiency Test Using Simulated Data
-----------------------------------------------------------------
Main Effects: 1 2 3 4 5
Build includes 250 respondents.

Total number of choices in each response category:
Category   Number  Percent
-----------------------------------------------------
       1      873   29.10%
       2      880   29.33%
       3      828   27.60%
       4      419   13.97%

There are 3000 expanded tasks in total, or an average of 12.0 tasks per respondent.


Iter    1  Log-likelihood = -4056.99737  Chi Sq = 203.77144  RLH = 0.25864
Iter    2  Log-likelihood = -4045.99374  Chi Sq = 225.77869  RLH = 0.25959
Iter    3  Log-likelihood = -4045.24795  Chi Sq = 227.27027  RLH = 0.25965
Iter    4  Log-likelihood = -4045.21266  Chi Sq = 227.34085  RLH = 0.25965
Iter    5  Log-likelihood = -4045.21119  Chi Sq = 227.34379  RLH = 0.25965
Iter    6  Log-likelihood = -4045.21113  Chi Sq = 227.34390  RLH = 0.25965
Iter    7  Log-likelihood = -4045.21113  Chi Sq = 227.34391  RLH = 0.25965
*Converged


          Std Err    Attribute Level
  1       0.03009    1 1 1
  2       0.03002    1 2 4
  3       0.03011    1 3 7

  4       0.03010    2 1 2%
  5       0.03014    2 2 6%
  6       0.02998    2 3 10%

  7       0.02995    3 1 0,5%
  8       0.03000    3 2 1,25%
  9       0.02999    3 3 2%

 10       0.03020    4 1 Centraal Beheer
 11       0.02967    4 2 Robeco
 12       0.02981    4 3 Rabobank

 13       0.03747    5 1 Uitbesteden van beleggingen
 14       0.03834    5 2 Beleggen onder advies
 15       0.03805    5 3 Eigen beleggingsportefeuille samenstellen
 16       0.03757    5 4 Robo-advies

 17       0.05268    NONE


A general guideline is to achieve standard errors of 0.05 or smaller for main effect utilities and 0.10 or smaller for interaction effects or alternative-specific effects.

The strength of design for this model is 1139.45267
(The ratio of strengths of design for two designs reflects the D-Efficiency of one design relative to the other.)
```

```
CBC Design: Preliminary Counting Test
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Task generation method is 'Balanced Overlap' using a seed of 1.
Based on 300 version(s).
Includes 3600 total choice tasks (12 per version).
Each choice task includes 3 concepts and 5 attributes.


Att  Lev     Freq  Level
 1    1      3556  1
 1    2      3689  4
 1    3      3555  7

 2    1      3555  2%
 2    2      3690  6%
 2    3      3555  10%

 3    1      3600  0,5%
 3    2      3601  1,25%
 3    3      3599  2%

 4    1      3600  Centraal Beheer
 4    2      3600  Robeco
 4    3      3600  Rabobank

 5    1      2700  Uitbesteden van beleggingen
 5    2      2700  Beleggen onder advies
 5    3      2700  Eigen beleggingsportefeuille samenstellen
 5    4      2700  Robo-advies

**Warning: You have specified a prohibition between two or more attributes.  You cannot automatically estimate an interaction effect between two attributes when a prohibition is in place.

**Warning: We strongly encourage you to further investigate the efficiency of your design prior to fielding this study.

Two-Way Frequencies
-------------------------------------------------------------
Att/Lev       1/1       1/2       1/3       2/1       2/2       2/3       3/1       3/2       3/3       4/1       4/2       4/3       5/1       5/2       5/3       5/4
1/1          3556         0         0      2107      1449         0      1185      1186      1185      1185      1186      1185       890       890       887       889
1/2             0      3689         0      1448       792      1449      1231      1229      1229      1231      1229      1229       922       922       923       922
1/3             0         0      3555         0      1449      2106      1184      1186      1185      1184      1185      1186       888       888       890       889
2/1          2107      1448         0      3555         0         0      1187      1185      1183      1185      1186      1184       891       888       888       888
2/2          1449       792      1449         0      3690         0      1228      1230      1232      1229      1230      1231       922       923       923       922
2/3             0      1449      2106         0         0      3555      1185      1186      1184      1186      1184      1185       887       889       889       890
3/1          1185      1231      1184      1187      1228      1185      3600         0         0      1201      1200      1199       903       898       900       899
3/2          1186      1229      1186      1185      1230      1186         0      3601         0      1201      1199      1201       899       901       900       901
3/3          1185      1229      1185      1183      1232      1184         0         0      3599      1198      1201      1200       898       901       900       900
4/1          1185      1231      1184      1185      1229      1186      1201      1201      1198      3600         0         0       900       900       900       900
4/2          1186      1229      1185      1186      1230      1184      1200      1199      1201         0      3600         0       901       899       901       899
4/3          1185      1229      1186      1184      1231      1185      1199      1201      1200         0         0      3600       899       901       899       901
5/1           890       922       888       891       922       887       903       899       898       900       901       899      2700         0         0         0
5/2           890       922       888       888       923       889       898       901       901       900       899       901         0      2700         0         0


Logit Efficiency Test Using Simulated Data
-------------------------------------------------------------
Main Effects: 1 2 3 4 5
Build includes 250 respondents.

Total number of choices in each response category:
Category   Number  Percent
-------------------------------------------------
       1      873   29.10%
       2      880   29.33%
       3      828   27.60%
       4      419   13.97%

There are 3000 expanded tasks in total, or an average of 12.0 tasks per respondent.

Iter    1  Log-likelihood = -4057.81257  Chi Sq = 202.14102  RLH = 0.25857
Iter    2  Log-likelihood = -4046.80487  Chi Sq = 224.15643  RLH = 0.25952
Iter    3  Log-likelihood = -4046.05819  Chi Sq = 225.64979  RLH = 0.25958
Iter    4  Log-likelihood = -4046.02285  Chi Sq = 225.72046  RLH = 0.25958
Iter    5  Log-likelihood = -4046.02138  Chi Sq = 225.72340  RLH = 0.25958
Iter    6  Log-likelihood = -4046.02132  Chi Sq = 225.72352  RLH = 0.25958
Iter    7  Log-likelihood = -4046.02132  Chi Sq = 225.72353  RLH = 0.25958
*Converged


          Std Err    Attribute Level
  1       0.03723    1 1 1
  2       0.03049    1 2 4
  3       0.03719    1 3 7

  4       0.03714    2 1 2%
  5       0.03073    2 2 6%
  6       0.03707    2 3 10%

  7       0.03029    3 1 0,5%
  8       0.02999    3 2 1,25%
  9       0.02993    3 3 2%

 10       0.03036    4 1 Centraal Beheer
 11       0.03008    4 2 Robeco
 12       0.03010    4 3 Rabobank

 13       0.03794    5 1 Uitbesteden van beleggingen
 14       0.03779    5 2 Beleggen onder advies
 15       0.03777    5 3 Eigen beleggingsportefeuille samenstellen
 16       0.03782    5 4 Robo-advies

 17       0.05268    NONE

A general guideline is to achieve standard errors of 0.05 or smaller for main effect utilities and 0.10 or smaller for interaction effects or alternative-specific effects.

The strength of design for this model is 1077.13921
(The ratio of strengths of design for two designs reflects the D-Efficiency of one design relative to the other.)
```

A5 Questionnaire

Dear respondent, Thank you for your participation in this research. The subject of this research is investment propositions. In this context, you can think of a fund, offered by an external party, in which you can invest your assets. For my master thesis for Achmea Investment Management, I am doing research towards the preference of consumers for different investment propositions.

Your opinion is, whatever your knowledge is regarding investing, very relevant for my research.

The questionnaire will start with a number of choice scenarios regarding your preference for different investment propositions. More on this will be explained on the next page. After this you will receive some general questions. Filling in the questionnaire takes around 10 minutes.

With kind regards,

Erik Visscher

e.g.h.visscher@tilburguniversity.edu

All your answers will be processed anonymously and confidential.

In the next section, you can see different investment propositions which differ in composition. A fund invests assets of different investors, spread over different kinds of investments. This results in, among others, in economies of scale, and a spread in risk.

Imagine investing in an investment fund.

You need to choose the proposition which appeals to you most every time. If you do not like all options, you can pick the "none-option". However, try to limit to only picking this option in extreme scenarios. You will receive 14 different choice situations of investment propositions in a row.

An investment proposition is in this situation defined by five different aspects. These will be explained below.

Risk: the level of risk of the respective fund. An example out of practice is shown below. A score of 1 means the fund has a low risk and you will probably receive your investment again at the end date. A score of 7 means the fund has a high risk and opportunity exists you will receive less money than you deposited.

Yearly costs: the average percentage you pay every year over your invested assets.

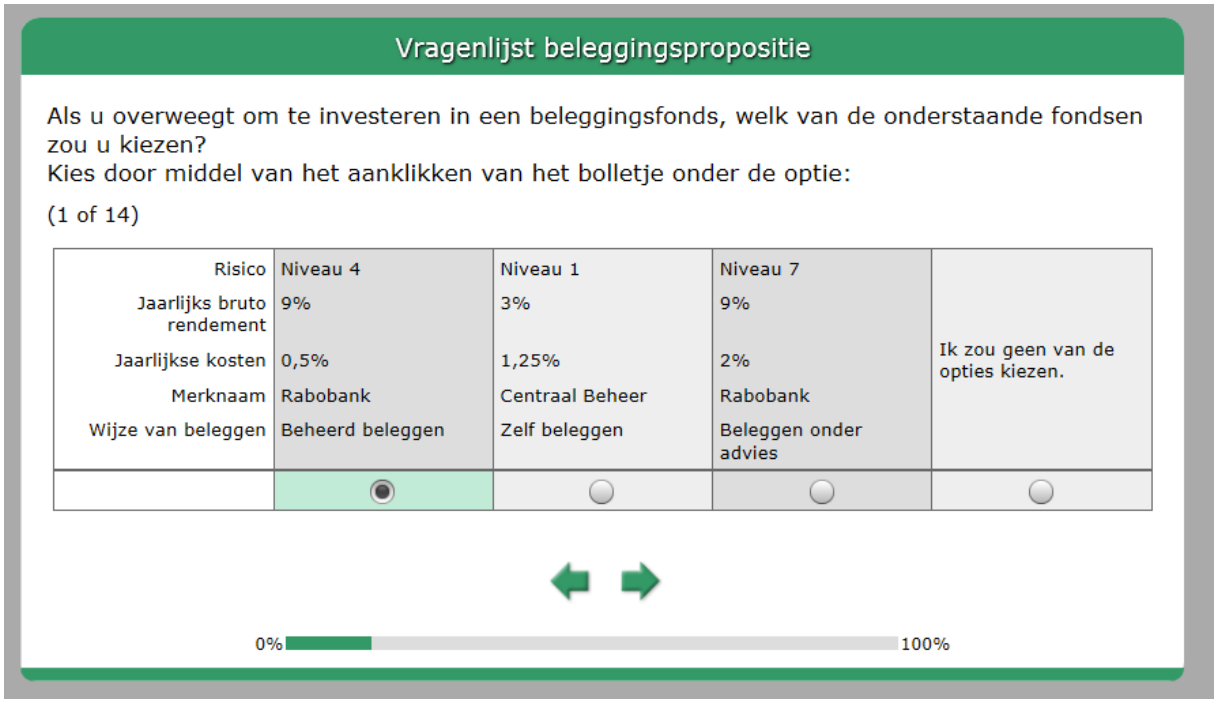
Gross returns: the average percentage you receive over your invested assets every year.

Brand name: the company which offers the fund

Investment method: the way the supplier of the fund supports you.

This includes:

- Complete outsourcing of your investments by the supplier of the funds
- Investing on your own with advice from the supplier
- Investing on your own
- Investing on your own with robo-advice (automated advice with minimal human intervention)



If you consider to invest in an investment fund, which of te funds below would you choose?

Choose by selecting the circle below the option:

Vragenlijst beleggingspropositie

Als u overweegt om te investeren in een beleggingsfonds, welk van de onderstaande fondsen zou u kiezen?
Kies door middel van het aanklikken van het bolletje onder de optie:

(2 of 14)

Risico	Niveau 1	Niveau 1	Niveau 4	
Jaarlijks bruto rendement	6%	6%	3%	
Jaarlijkse kosten	0,5%	2%	1,25%	Ik zou geen van de opties kiezen.
Merknaam	Robeco	Rabobank	Robeco	
Wijze van beleggen	Robo-advies	Zelf beleggen	Robo-advies	
	○	○	○	○

0% 100%

Vragenlijst beleggingspropositie

Als u overweegt om te investeren in een beleggingsfonds, welk van de onderstaande fondsen zou u kiezen?
Kies door middel van het aanklikken van het bolletje onder de optie:

(3 of 14)

Risico	Niveau 7	Niveau 4	Niveau 7	
Jaarlijks bruto rendement	6%	3%	9%	
Jaarlijkse kosten	0,5%	1,25%	2%	Ik zou geen van de opties kiezen.
Merknaam	Robeco	Centraal Beheer	Rabobank	
Wijze van beleggen	Beleggen onder advies	Beleggen onder advies	Robo-advies	
	○	○	○	○

0% 100%

Vragenlijst beleggingspropositie

Als u overweegt om te investeren in een beleggingsfonds, welk van de onderstaande fondsen zou u kiezen?
Kies door middel van het aanklikken van het bolletje onder de optie:

(4 of 14)

Risico	Niveau 1	Niveau 7	Niveau 4	
Jaarlijks bruto rendement	3%	6%	9%	
Jaarlijkse kosten	0,5%	1,25%	1,25%	Ik zou geen van de opties kiezen.
Merknaam	Centraal Beheer	Robeco	Rabobank	
Wijze van beleggen	Robo-advies	Beheerd beleggen	Beheerd beleggen	
	○	○	○	○

0% 100%

Vragenlijst beleggingspropositie

Als u overweegt om te investeren in een beleggingsfonds, welk van de onderstaande fondsen zou u kiezen?
Kies door middel van het aanklikken van het bolletje onder de optie:

(5 of 14)

Risico	Niveau 4	Niveau 1	Niveau 7	
Jaarlijks bruto rendement	6%	3%	9%	
Jaarlijkse kosten	0,5%	1,25%	2%	Ik zou geen van de opties kiezen.
Merknaam	Centraal Beheer	Robeco	Rabobank	
Wijze van beleggen	Zelf beleggen	Beleggen onder advies	Beheerd beleggen	
	○	○	○	○

0% 100%

Vragenlijst beleggingspropositie

Als u overweegt om te investeren in een beleggingsfonds, welk van de onderstaande fondsen zou u kiezen?
Kies door middel van het aanklikken van het bolletje onder de optie:

(6 of 14)

Risico	Niveau 4	Niveau 4	Niveau 7	
Jaarlijks bruto rendement	3%	9%	9%	
Jaarlijkse kosten	0,5%	2%	0,5%	Ik zou geen van de opties kiezen.
Merknaam	Rabobank	Robeco	Centraal Beheer	
Wijze van beleggen	Beleggen onder advies	Zelf beleggen	Beheerd beleggen	
	○	○	○	○

0% 100%

Vragenlijst beleggingspropositie

Als u overweegt om te investeren in een beleggingsfonds, welk van de onderstaande fondsen zou u kiezen?
Kies door middel van het aanklikken van het bolletje onder de optie:

(7 of 14)

Risico	Niveau 1	Niveau 7	Niveau 7	
Jaarlijks bruto rendement	3%	9%	6%	
Jaarlijkse kosten	2%	1,25%	0,5%	Ik zou geen van de opties kiezen.
Merknaam	Rabobank	Centraal Beheer	Robeco	
Wijze van beleggen	Beheerd beleggen	Zelf beleggen	Beleggen onder advies	
	○	○	○	○

0% 100%

Vragenlijst beleggingspropositie

Als u overweegt om te investeren in een beleggingsfonds, welk van de onderstaande fondsen zou u kiezen?
Kies door middel van het aanklikken van het bolletje onder de optie:

(8 of 14)

Risico	Niveau 7	Niveau 4	Niveau 1	
Jaarlijks bruto rendement	9%	3%	3%	
Jaarlijkse kosten	1,25%	2%	1,25%	Ik zou geen van de opties kiezen.
Merknaam	Robeco	Centraal Beheer	Rabobank	
Wijze van beleggen	Zelf beleggen	Beheerd beleggen	Robo-advies	
	○	○	○	○

0% 100%

Vragenlijst beleggingspropositie

Als u overweegt om te investeren in een beleggingsfonds, welk van de onderstaande fondsen zou u kiezen?
Kies door middel van het aanklikken van het bolletje onder de optie:

(9 of 14)

Risico	Niveau 4	Niveau 1	Niveau 4	
Jaarlijks bruto rendement	3%	6%	6%	
Jaarlijkse kosten	2%	1,25%	0,5%	Ik zou geen van de opties kiezen.
Merknaam	Centraal Beheer	Rabobank	Robeco	
Wijze van beleggen	Zelf beleggen	Beleggen onder advies	Zelf beleggen	
	○	○	○	○

0% 100%

Vragenlijst beleggingspropositie

Als u overweegt om te investeren in een beleggingsfonds, welk van de onderstaande fondsen zou u kiezen?
Kies door middel van het aanklikken van het bolletje onder de optie:

(10 of 14)

Risico	Niveau 4	Niveau 1	Niveau 7	
Jaarlijks bruto rendement	9%	3%	6%	
Jaarlijkse kosten	1,25%	2%	0,5%	Ik zou geen van de opties kiezen.
Merknaam	Centraal Beheer	Rabobank	Robeco	
Wijze van beleggen	Zelf beleggen	Beheerd beleggen	Beleggen onder advies	
	○	○	○	○

0% 100%

Vragenlijst beleggingspropositie

Als u overweegt om te investeren in een beleggingsfonds, welk van de onderstaande fondsen zou u kiezen?
Kies door middel van het aanklikken van het bolletje onder de optie:

(11 of 14)

Risico	Niveau 7	Niveau 1	Niveau 4	
Jaarlijks bruto rendement	9%	6%	3%	
Jaarlijkse kosten	0,5%	2%	0,5%	Ik zou geen van de opties kiezen.
Merknaam	Robeco	Robeco	Centraal Beheer	
Wijze van beleggen	Robo-advies	Beleggen onder advies	Robo-advies	
	○	○	○	○

0% 100%

Vragenlijst beleggingspropositie

Als u overweegt om te investeren in een beleggingsfonds, welk van de onderstaande fondsen zou u kiezen?
Kies door middel van het aanklikken van het bolletje onder de optie:

(12 of 14)

Risico	Niveau 1	Niveau 7	Niveau 4	
Jaarlijks bruto rendement	3%	6%	9%	
Jaarlijkse kosten	2%	1,25%	0,5%	Ik zou geen van de opties kiezen.
Merknaam	Robeco	Rabobank	Centraal Beheer	
Wijze van beleggen	Beheerd beleggen	Zelf beleggen	Beleggen onder advies	
	○	○	○	○

0% 100%

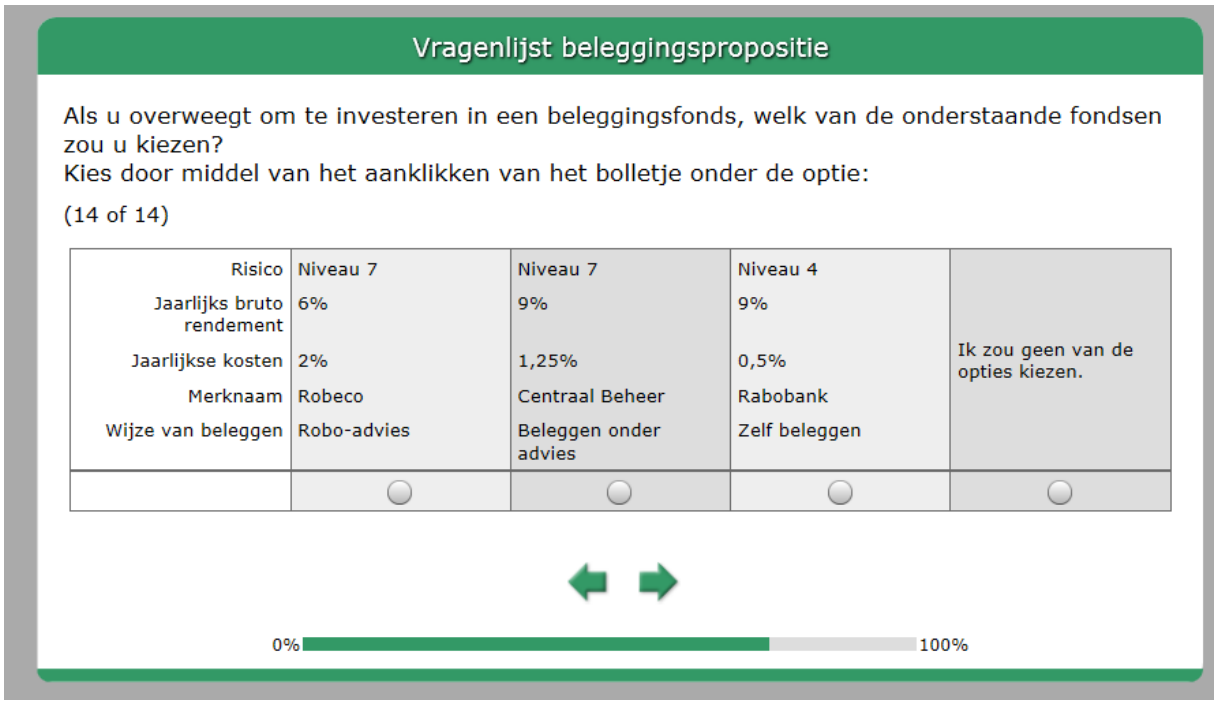
Vragenlijst beleggingspropositie

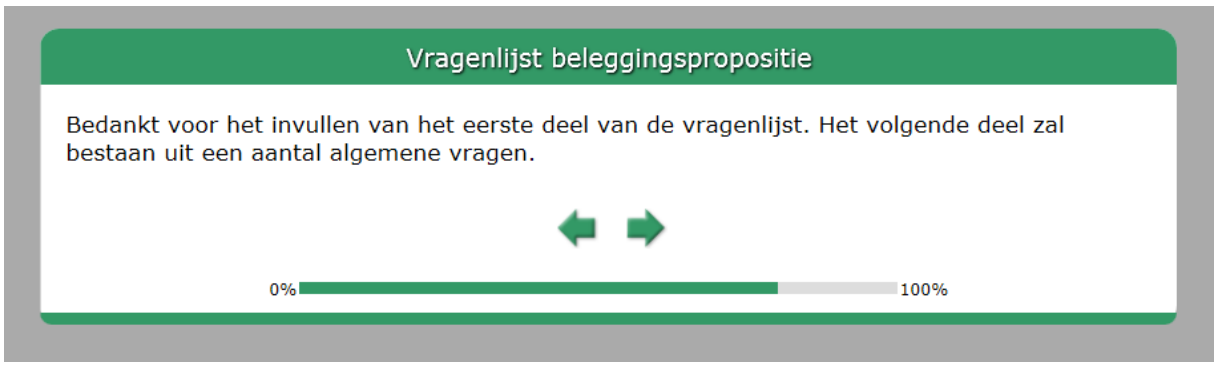
Als u overweegt om te investeren in een beleggingsfonds, welk van de onderstaande fondsen zou u kiezen?
Kies door middel van het aanklikken van het bolletje onder de optie:

(13 of 14)

Risico	Niveau 1	Niveau 7	Niveau 4	
Jaarlijks bruto rendement	6%	6%	3%	
Jaarlijkse kosten	2%	2%	1,25%	Ik zou geen van de opties kiezen.
Merknaam	Centraal Beheer	Rabobank	Rabobank	
Wijze van beleggen	Zelf beleggen	Beheerd beleggen	Robo-advies	
	○	○	○	○

0% 100%





Thank you for filling in the first part of the questionnaire. The next part will consist of a few general questions.

Vragenlijst beleggingspropositie

Heeft u ervaring met beleggen? (Meerdere antwoorden mogelijk)

- [ ] Ik heb zelf een beleggingsportefeuille samengesteld
- [ ] Ik heb mijn beleggingen uitbesteed aan een vermogensbeheerder
- [ ] Ik heb met behulp van advies belegd
- [ ] Ik heb in een fonds belegd
- [ ] Anders, namelijk
- [ ] Ik heb nog nooit belegd

Wat zijn voor u redenen om te beleggen? (Meerdere antwoorden mogelijk)

- [ ] Beleggen levert meer geld op
- [ ] Omdat ik een specifiek financieel doel heb dat ik anders niet kan halen
- [ ] Sensatie
- [ ] Omdat ik het geld tijdelijk kan missen
- [ ] Om mijn vermogen te beschermen tegen inflatie
- [ ] Om mijn pensioen aan te vullen
- [ ] Anders, namelijk
- [ ] Ik beleg niet

Wat zou u weerhouden van beleggen? (Meerdere antwoorden mogelijk)

- [ ] Geen tijd om te beleggen
- [ ] Ik heb geen verstand van beleggen
- [ ] Ik vind beleggen een te groot risico
- [ ] Ik heb geen vertrouwen in de financiële markt
- [ ] Ik wil graag direct bij mijn geld kunnen
- [ ] Beleggen is voor de rijken
- [ ] Anders, namelijk

Welke bronnen spelen een belangrijke rol voor informatieverschaffing bij uw beleggingskeuzes? (Meerdere antwoorden mogelijk)

- [ ] Internet
- [ ] Mijn persoonlijke netwerk
- [ ] Tv, krant of vakbladen
- [ ] Een externe beleggingsadviseur
- [ ] De aanbieder van het beleggingsfonds
- [ ] Anders, namelijk
- [ ] Geen

Indien u besluit tot beleggen, welke partijen prefereert u? (Meerdere antwoorden mogelijk)

- [ ] Bij mijn huisbank
- [ ] Bij een online broker of specifieke beleggingsbank
- [ ] Bij een verzekeraar
- [ ] Anders, namelijk
- [ ] Geen voorkeur

Indien u besluit tot beleggen, welke wijze van geld inleggen prefereert u?

- ( ) Eenmalig
- ( ) Periodiek
- ( ) Geen voorkeur

0% 100%

Vragenlijst beleggingspropositie

Hoe transparant vindt u beleggingsproposities op het gebied van kostenoverzicht op een schaal van 1 t/m 7? (Indien u geen mening heeft laat het balkje dan in het midden staan)

Niet transparant — Erg transparant

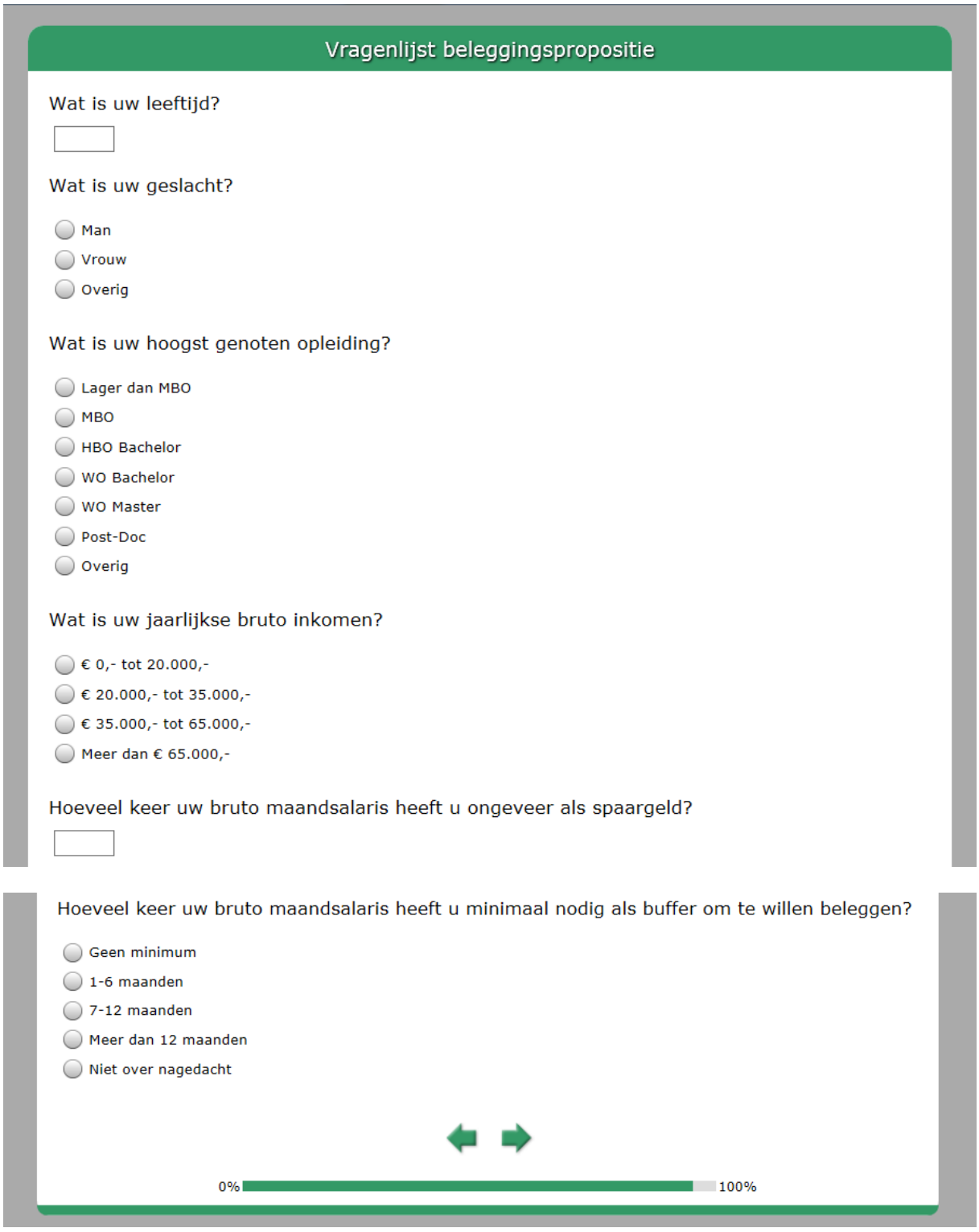
Hoe financieel onderlegd ziet u zichzelf op een schaal van 1 t/m 7?

Niet financieel onderlegd — Erg financieel onderlegd

Hoe risicomijdend vindt u zichzelf op een schaal van 1 t/m 7?

Niet risicomijdend — Erg risicomijdend

0% 100%



Do you have any experience with investing? (Multiple answers possible)

- I have created my own investment portfolio
- I have outsources my investments to an investment manager
- I have invested under advice
- I have invested in a fund
- Other, namely
- I have never invested before

What are reasons for you to invest? (Multiple answers possible)

- Investing makes more money
- Because I have a specific financial goal which I could not achieve otherwise
- Sensation
- Because I can temporary miss the money
- To protect my assets against inflation
- To complement my pension
- Other, namely
- I do not invest

What would refrain you from investing? (Multiple answers possible)

- No time to invest
- I do not have any investment knowledge
- I think investing is too great of a risk
- I do not trust the financial market
- I would like to instantly reach my money
- Investing is for the rich
- Other, namely

Which sources play an important role while acquiring information in your investment choices? (Multiple answers possible)

- Internet
- Personal network
- Television, newspaper or journals
- External investment advisor
- Other, namely
- None

If you decide to invest, which parties would you prefer? (Multiple answers possible)

- My house bank
- Online broker or investment specialist
- Insurance company
- Other, namely
- No preference

If you decide to invest, which method of depositing money would you prefer?

- Once
- Periodic
- No preference

How transparent do you think investment propositions are based on their cost structure on a scale of 1 to 7? (If you do not have an opinion, please leave the bar in the middle)

How financially literate do you see yourself on a scale from 1 to 7?

How risk averse do you see yourself on a scale from 1 to 7?

What is your age?

What is your gender?

- Male
- Female
- Other

What is your highest level of education?

- Lower than MBO
- MBO
- HBO Bachelor
- WO Bachelor
- WO Master
- Post-Doc
- Other

What is your annual gross income?

- € 0,- till 20.000,-
- € 20.000,- till 35.000,-
- € 35.000,- till 65.000,-
- More than € 65.000,-

How many times your gross monthly salary do you have as savings?

How many times your gross monthly salary do you need as a buffer in order to start investing?

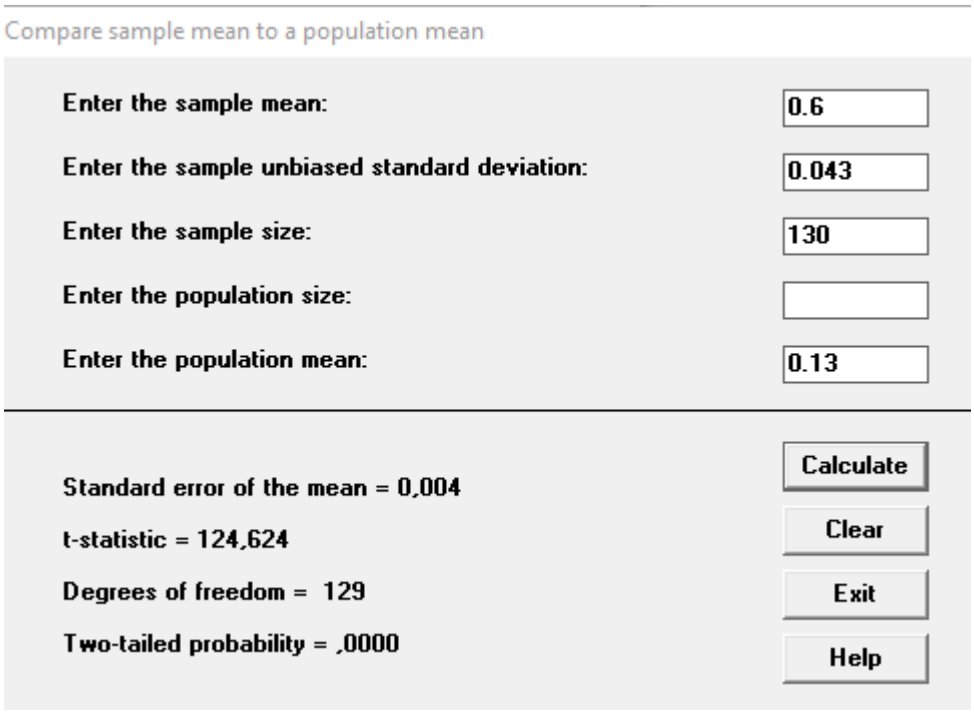
- No minimum
- 1-6 months
- 7-12 months
- More than 12 months
- Did not think about it

Thank you for participating in this research.

Any questions or comments? Please contact me at: e.g.h.visscher@tilburguniversity.edu

A6 Descriptive statistics

Sample mean percentage of investors compared to the population mean.



Q1 Age	
Average	35,65
Q2 Gender	
Male	75%
Female	22,7%
Other	2,3%
Q3 Education	
MBO	5,5%
HBO Bachelor	32,0%
WO Bachelor	2,3%
WO Master	39,8%
Post-Doc	17,2%
Other	3,1%
Q4 Income	
€ 0,- till 20.000,-	20,8%
€ 20.000,- tot 35.000,-	20,8%
€ 35.000,- tot 65.000,-	24,2%
More than € 65.000,-	34,2%
Q5 Savings in terms of monthly salary	
Average	6,12
Q6 Savings as a buffer	
No minimum	11,6%
1-6 months	13,2%
7-12 months	18,2%
More than 12 months	8,3%
Did not think about it	48,8%
Q7 Experience with investing (Multiple answers possible)	
I have created my own investment portfolio	35,4%
I outsourced my investments	5,4%
I have invested under advice	6,2%

I have invested in an investment fund	24,6%
Other	1,5%
I have never invested before	40%
Q8 Channel preference (Multiple answers possible)	
Bank	35,4%
Investment specialist	45,4%
Insurance company	6,2%
Other	5,4%
None	30%
Q9 Deposit money preference	
Once	30,0%
Periodic	42,3%
No preference	27,7%
Q10 Reasons to invest (Multiple answers possible)	
More money	66,9%
Specific financial goal	6,9%
Sensation	16,9%
Not needing the money on short term	37,7%
Protecting my assets	13,1%
Complement to pension	20,8%
Other	1,5%
I do not invest	22,3%
Q11 Reasons to not invest (Multiple answers possible)	
No time	19,2%
No knowledge	33,1%
Risk	36,2%
No trust in the market	11,5%
The need to directly access money	21,5%
Investing is only for the rich	6,9%
Other	12,3%
Q12 Important sources playing a role while investing (Multiple answers possible)	
Internet	72,3%
Own network	40%
Media	25,4%
External advisor	20,8%
Supplier of the investment fund	39,2%
Other	3,1%
None	9,2%
Q13 Transparency in investment propositions	
Average	3,6
Q14 Financially literate	
Average	4,74
Q15 Risk aversion	
Average	3,7

A7 Counting analysis

Choice Tasks Included	12 Random - 0 Fixed
	Random1, Random2, Random3, Random4, Random5, Random6, Random7, Random8, Random9, Random10, Random11, Random12
Risico	
	Total
Total Respondents	132
Niveau 1	0,274
Niveau 4	0,339
Niveau 7	0,256
Within Att. Chi-Square	21,042
D.F.	2
Significance	p < .01
Jaarlijks bruto rendement	
	Total
Total Respondents	132
3%	0,114
6%	0,325
9%	0,431
Within Att. Chi-Square	281,672
D.F.	2
Significance	p < .01
Jaarlijkse kosten	
	Total
Total Respondents	132
0,5%	0,402
1,25%	0,270
2%	0,199
Within Att. Chi-Square	115,714
D.F.	2
Significance	p < .01

Merknaam	
	Total
Total Respondents	132
Centraal Beheer	0,282
Robeco	0,289
Rabobank	0,299
Within Att. Chi-Square	0,809
D.F.	2
Significance	not sig
Wijze van beleggen	
	Total
Total Respondents	132
Beheerd beleggen	0,314
Beleggen onder advies	0,309
Zelf beleggen	0,269
Robo-advies	0,269
Within Att. Chi-Square	7,287
D.F.	3
Significance	not sig

Jaarlijks bruto rendement x Jaarlijkse kosten		
		Total
Total Respondents		132
3%	0,5%	0,195
3%	1,25%	0,102
3%	2%	0,040
6%	0,5%	0,449
6%	1,25%	0,307
6%	2%	0,221
9%	0,5%	0,566
9%	1,25%	0,402
9%	2%	0,328
Interaction Chi-Square		17,302
D.F.		4
Significance		p < .01

Risico x Jaarlijks bruto rendement		
		Total
Total Respondents		132
Niveau 1	3%	0,136
Niveau 1	6%	0,476
Niveau 1	9%	*
Niveau 4	3%	0,080
Niveau 4	6%	0,354
Niveau 4	9%	0,588
Niveau 7	3%	*
Niveau 7	6%	0,158
Niveau 7	9%	0,323
Interaction Chi-Square		91,004
D.F.		4
Significance		p < .01

A8 Logit

Logit with only main effects

Number of Respondents	132		
Iteration	Chi-Square	Fit Statistic (RLH)	
1	962,31839	0,33874	
2	976,91606	0,34030	
3	976,99623	0,34031	
4	976,99623	0,34031	
*Converged after 0.05 seconds.			
Log-likelihood for this model	-1707,39215		
Log-likelihood for null model	-2195,89027		
Difference	488,49812		
Percent Certainty	22,24602		
Akaike Info Criterion	3438,78430		
Consistent Akaike Info Criterion	3515,19681		
Bayesian Information Criterion	3503,19681		
Adjusted Bayesian Info Criterion	3465,07530		
Chi-Square	976,99623		
Relative Chi-Square	81,41635		
Variable	Effect	Std Error	t Ratio
Niveau 1	0,76812	0,06413	11,97800
Niveau 4	0,15980	0,04855	3,29165
Niveau 7	-0,92792	0,05812	-15,96451
3%	-1,52838	0,07094	-21,54426
6%	0,27923	0,04860	5,74592
9%	1,24915	0,06446	19,37752

0,5%	0,56760	0,04631	12,25789
1,25%	-0,06030	0,04777	-1,26219
2%	-0,50730	0,05131	-9,88672
Centraal Beheer	-0,04128	0,04761	-0,86694
Robeco	-0,01703	0,04743	-0,35894
Rabobank	0,05830	0,04672	1,24795
Beheerd beleggen	0,12753	0,05874	2,17098
Beleggen onder advies	0,08289	0,05879	1,41006
Zelf beleggen	-0,09857	0,06022	-1,63678
Robo-advies	-0,11185	0,06015	-1,85952
NONE	-0,55452	0,07815	-7,09557

Logit with Risk x Returns as interaction term

Number of Respondents		132		
	Iteration	Chi-Square	Fit Statistic (RLH)	
	1	960,48619	0,33854	
*Warning: The data are ill-conditioned. A ridge adjustment was made.				
*Converged after 0.02 seconds.				
Log-likelihood for this model		-1715,64717		
Log-likelihood for null model		-2195,89027		
Difference		480,24310		
Percent Certainty		21,87009		
Akaike Info Criterion		3463,29435		
Consistent Akaike Info Criterion		3565,17768		
Bayesian Information Criterion		3549,17768		
Adjusted Bayesian Info Criterion		3498,34901		
Chi-Square		960,48619		
Relative Chi-Square		60,03039		
Variable		Effect	Std Error	t Ratio
Niveau 1		0,19570	*******	*******
Niveau 4		0,21668	*******	*******
Niveau 7		-0,41238	*******	*******
3%		-0,81729	*******	*******
6%		0,16694	*******	*******
9%		0,65035	*******	*******

0,5%	0,51321	0,04379	11,71872
1,25%	-0,08618	0,04383	-1,96610
2%	-0,42703	0,04379	-9,75230
Centraal Beheer	-0,04064	0,04400	-0,92374
Robeco	-0,01092	0,04391	-0,24866
Rabobank	0,05156	0,04394	1,17350
Beheerd beleggen	0,11641	0,05478	2,12520
Beleggen onder advies	0,08209	0,05514	1,48857
Zelf beleggen	-0,09811	0,05491	-1,78679
Robo-advies	-0,10039	0,05505	-1,82361
Niveau 1 x 3%	-0,12667	*******	*******
Niveau 1 x 6%	0,57999	*******	*******
Niveau 1 x 9%	-0,45332	*******	*******
Niveau 4 x 3%	-0,43300	*******	*******
Niveau 4 x 6%	-0,14456	*******	*******
Niveau 4 x 9%	0,57757	*******	*******
Niveau 7 x 3%	0,55967	*******	*******
Niveau 7 x 6%	-0,43543	*******	*******
Niveau 7 x 9%	-0,12425	*******	*******
NONE	-0,65913	*******	*******

Logit with Returns x Costs as interaction term

Number of Respondents	132			
Iteration	Chi-Square	Fit Statistic (RLH)		
1	956,14403	0,33808		
2	981,89700	0,34084		
3	983,04725	0,34096		
4	983,05698	0,34096		
5	983,05698	0,34096		
*Converged after 0.10 seconds.				
Log-likelihood for this model	-1704,36178			
Log-likelihood for null model	-2195,89027			
Difference	491,52849			
Percent Certainty	22,38402			
Akaike Info Criterion	3440,72355			
Consistent Akaike Info Criterion	3542,60689			
Bayesian Information Criterion	3526,60689			
Adjusted Bayesian Info Criterion	3475,77822			
Chi-Square	983,05698			
Relative Chi-Square	61,44106			
Variable	Effect	Std Error	t Ratio	
Niveau 1	0,76751	0,06463	11,87556	
Niveau 4	0,15671	0,04874	3,21508	
Niveau 7	-0,92421	0,05818	-15,88606	

3%	-1,58075	0,07807	-20,24707
6%	0,30462	0,05182	5,87851
9%	1,27613	0,06640	19,21876
0,5%	0,59897	0,05049	11,86439
1,25%	-0,01846	0,05405	-0,34162
2%	-0,58051	0,06472	-8,96886
Centraal Beheer	-0,04308	0,04768	-0,90355
Robeco	-0,01612	0,04744	-0,33974
Rabobank	0,05920	0,04670	1,26766
Beheerd beleggen	0,12712	0,05872	2,16487
Beleggen onder advies	0,08465	0,05877	1,44047
Zelf beleggen	-0,10066	0,06017	-1,67302
Robo-advies	-0,11111	0,06011	-1,84855
3% x 0,5%	0,11802	0,08814	1,33903
3% x 1,25%	0,10996	0,09576	1,14834
3% x 2%	-0,22798	0,11793	-1,93312
6% x 0,5%	-0,04921	0,07335	-0,67097
6% x 1,25%	0,01005	0,07670	0,13110
6% x 2%	0,03916	0,08630	0,45376
9% x 0,5%	-0,06881	0,07215	-0,95366
9% x 1,25%	-0,12002	0,07455	-1,60986
9% x 2%	0,18882	0,08351	2,26115
NONE	-0,52809	0,07986	-6,61235

Logit with Risk x Returns and Costs x Returns as interaction terms

Number of Respondents		132		
	Iteration	Chi-Square	Fit Statistic (RLH)	
	1	955,03962	0,33796	
*Warning: The data are ill-conditioned. A ridge adjustment was made.				
*Converged after 0.04 seconds.				
Log-likelihood for this model		-1718,37046		
Log-likelihood for null model		-2195,89027		
Difference		477,51981		
Percent Certainty		21,74607		
Akaike Info Criterion		3476,74092		
Consistent Akaike Info Criterion		3604,09509		
Bayesian Information Criterion		3584,09509		
Adjusted Bayesian Info Criterion		3520,55925		
Chi-Square		955,03962		
Relative Chi-Square		47,75198		
Variable		Effect	Std Error	t Ratio
Niveau 1		0,19856	*******	*******
Niveau 4		0,21569	*******	*******
Niveau 7		-0,41425	*******	*******
3%		-0,81810	*******	*******
6%		0,16641	*******	*******
9%		0,65169	*******	*******

0,5%	0,51309	0,04381	11,71169
1,25%	-0,08777	0,04384	-2,00194
2%	-0,42532	0,04381	-9,70900
Centraal Beheer	-0,03372	0,04408	-0,76504
Robeco	-0,01578	0,04396	-0,35894
Rabobank	0,04950	0,04397	1,12578
Beheerd beleggen	0,11590	0,05480	2,11487
Beleggen onder advies	0,08162	0,05516	1,47971
Zelf beleggen	-0,09731	0,05492	-1,77194
Robo-advies	-0,10021	0,05506	-1,82002
Niveau 1 x 3%	-0,12504	*******	*******
Niveau 1 x 6%	0,58115	*******	*******
Niveau 1 x 9%	-0,45611	*******	*******
Niveau 4 x 3%	-0,43551	*******	*******
Niveau 4 x 6%	-0,14537	*******	*******
Niveau 4 x 9%	0,58088	*******	*******
Niveau 7 x 3%	0,56055	*******	*******
Niveau 7 x 6%	-0,43577	*******	*******
Niveau 7 x 9%	-0,12477	*******	*******

3% x 0,5%	-0,19591	0,06833	-2,86704
3% x 1,25%	0,05306	0,06856	0,77391
3% x 2%	0,14285	0,06923	2,06326
6% x 0,5%	0,06005	0,06798	0,88335
6% x 1,25%	0,03395	0,06799	0,49937
6% x 2%	-0,09400	0,06833	-1,37568
9% x 0,5%	0,13585	0,06828	1,98977
9% x 1,25%	-0,08701	0,06798	-1,27983
9% x 2%	-0,04884	0,06863	-0,71174
NONE	-0,65999	*******	*******

Attribute	Range in absolute value	Importance
Risk	1,69603	29%
Returns	2,77753	47%
Brand name	0,09958	2%
Investment method	0,23938	4%
Costs	1,07491	18%
Total	5,88744	100%

Relative importance attributes logit

A9 Latent Class Analysis

Latent Class Estimation (7/25/2017 11:14:36 AM)

Minimum number of groups	2
Maximum number of groups	5
Number of replications	5
Maximum number of iterations	100
Convergence limit for log likelihood	0,01000
Random number seed	1
Null log-likelihood	-2195,89027

Summary of best replications

Groups	Replication	Log-likelihood	Pct Cert	AIC	CAIC	BIC	ABIC	Chi-Square	Relative Chi-Square
2	1	-1494,07944	31,96020	3038,15889	3197,35160	3172,35160	3092,93180	1403,62165	56,14487
3	5	-1358,15959	38,14993	2792,31917	3034,29210	2996,29210	2875,57400	1675,46136	44,09109
4	5	-1301,25996	40,74112	2704,51992	3029,27306	2978,27306	2816,25666	1789,26062	35,08354
5	4	-1263,98057	42,43881	2655,96113	3063,49448	2999,49448	2796,17979	1863,81940	29,12218

Summary of all replications

Groups	Replication	Log-likelihood	Pct Cert	AIC	CAIC	BIC	ABIC	Chi-Square	Relative Chi-Square
2	1	-1494,07944	31,96020	3038,15889	3197,35160	3172,35160	3092,93180	1403,62165	56,14487
2	2	-1494,08196	31,96008	3038,16391	3197,35663	3172,35663	3092,93683	1403,61662	56,14466
2	3	-1494,08296	31,96004	3038,16591	3197,35863	3172,35863	3092,93883	1403,61462	56,14458
2	4	-1559,00349	29,00358	3168,00698	3327,19969	3302,19969	3222,77989	1273,77356	50,95094
2	5	-1559,00103	29,00369	3168,00206	3327,19477	3302,19477	3222,77497	1273,77848	50,95114
3	1	-1358,16216	38,14982	2792,32432	3034,29725	2996,29725	2875,57915	1675,45621	44,09095
3	2	-1360,06186	38,06330	2796,12372	3038,09664	3000,09664	2879,37855	1671,65682	43,99097
3	3	-1360,06134	38,06333	2796,12268	3038,09561	3000,09561	2879,37751	1671,65785	43,99100
3	4	-1358,27209	38,14481	2792,54418	3034,51710	2996,51710	2875,79901	1675,23636	44,08517
3	5	-1358,15959	38,14993	2792,31917	3034,29210	2996,29210	2875,57400	1675,46136	44,09109
4	1	-1321,73030	39,80891	2745,46061	3070,21375	3019,21375	2857,19735	1748,31993	34,28078
4	2	-1301,26330	40,74097	2704,52659	3029,27973	2978,27973	2816,26334	1789,25394	35,08341
4	3	-1301,26107	40,74107	2704,52214	3029,27528	2978,27528	2816,25888	1789,25840	35,08350
4	4	-1301,26946	40,74069	2704,53892	3029,29206	2978,29206	2816,27567	1789,24161	35,08317
4	5	-1301,25996	40,74112	2704,51992	3029,27306	2978,27306	2816,25666	1789,26062	35,08354
5	1	-1269,51722	42,18667	2667,03445	3074,56780	3010,56780	2807,25311	1852,74609	28,94916
5	2	-1264,95332	42,39451	2657,90664	3065,43999	3001,43999	2798,12530	1861,87389	29,09178
5	3	-1282,70047	41,58631	2693,40093	3100,93428	3036,93428	2833,61959	1826,37960	28,53718
5	4	-1263,98057	42,43881	2655,96113	3063,49448	2999,49448	2796,17979	1863,81940	29,12218
5	5	-1269,67766	42,17937	2667,35533	3074,88867	3010,88867	2807,57399	1852,42521	28,94414

Tabulation of 2 group vs. 3 group solutions

	1	2	3	Total
1	0	16	4	20
2	50	0	62	112
Total	50	16	66	132

Tabulation of 3 group vs. 4 group solutions

	1	2	3	4	Total
1	42	0	0	8	50
2	0	0	16	0	16
3	2	21	0	43	66
Total	44	21	16	51	132

Tabulation of 4 group vs. 5 group solutions

	1	2	3	4	5	Total
1	25	0	0	1	18	44
2	0	15	0	0	6	21
3	0	0	16	0	0	16
4	1	0	0	46	4	51
Total	26	15	16	47	28	132

Solution for 3 Groups (Best Replication: 5)

Iteration	Log-likelihood	Gain	Segment 1 Size	Segment 2 Size	Segment 3 Size
0	-2195,89027				
1	-1616,25404	579,63623	36.4	28.7	34.9
2	-1518,48640	97,76764	34.5	26.7	38.8
3	-1481,70624	36,78016	34.9	22.7	42.4
4	-1429,13720	52,56904	35.4	20.4	44.2
5	-1401,39813	27,73908	35.5	18.9	45.6
6	-1395,64204	5,75608	35.5	18.0	46.5
7	-1389,41097	6,23108	35.7	16.9	47.4
8	-1382,48871	6,92226	36.1	15.6	48.3
9	-1374,37623	8,11248	36.5	14.5	49.0
10	-1367,80008	6,57615	36.8	13.7	49.5
11	-1362,87747	4,92261	37.0	12.9	50.1
12	-1359,63575	3,24172	37.2	12.5	50.3
13	-1358,88984	0,74590	37.3	12.2	50.5
14	-1358,55957	0,33028	37.4	12.0	50.6
15	-1358,35772	0,20184	37.5	11.8	50.7
16	-1358,27650	0,08122	37.5	11.8	50.7
17	-1358,25357	0,02293	37.5	11.8	50.7
18	-1358,23677	0,01680	37.5	11.9	50.6
19	-1358,21600	0,02077	37.5	11.9	50.6
20	-1358,19396	0,02204	37.5	12.0	50.5
21	-1358,17599	0,01797	37.6	12.0	50.4
22	-1358,16493	0,01107	37.6	12.0	50.4
23	-1358,15959	0,00534	37.6	12.0	50.4

Percent Certainty	38,14993		
Akaike Info Criterion	2792,31917		
Consistent Akaike Info Criterion	3034,29210		
Bayesian Information Criterion	2996,29210		
Adjusted Bayesian Info Criterion	2875,57400		
Chi-Square	1675,46136		
Relative Chi-Square	44,09109		
Segment Sizes	37.6%	12.0%	50.4%
Part Worth Utilities			
Niveau 1	0,35333	0,78520	1,26794
Niveau 4	0,11799	0,06824	0,39305
Niveau 7	-0,47131	-0,85344	-1,66099
3%	-2,27788	-1,80191	-1,54761
6%	0,14267	0,31931	0,46665
9%	2,13521	1,48260	1,08095
0,50%	1,09737	1,59406	0,39369
1,25%	0,00870	-0,99866	0,00573
2%	-1,10607	-0,59540	-0,39942
Centraal Beheer	-0,03518	0,01915	-0,04492
Robeco	0,24589	-0,51749	-0,11850
Rabobank	-0,21070	0,49834	0,16342
Beheerd beleggen	0,00348	-0,34777	0,37976
Beleggen onder advies	0,14557	-0,23794	0,15226
Zelf beleggen	0,10878	1,19898	-0,42449
Robo-advies	-0,25783	-0,61327	-0,10752
NONE	-2,36798	3,20838	-1,18781
Part Worth Utilities Rescaled for Comparability			
Niveau 1	21,28169	37,95451	85,24792
Niveau 4	7,10654	3,29872	26,42610
Niveau 7	-28,38823	-41,25323	-111,67401
3%	-137,20237	-87,09956	-104,05102
6%	8,59313	15,43482	31,37460
9%	128,60924	71,66473	72,67642
0,50%	66,09732	77,05273	26,46895
1,25%	0,52386	-48,27271	0,38556
2%	-66,62118	-28,78002	-26,85451
Centraal Beheer	-2,11928	0,92571	-3,01992
Robeco	14,81053	-25,01426	-7,96733
Rabobank	-12,69125	24,08855	10,98725
Beheerd beleggen	0,20953	-16,81027	25,53229
Beleggen onder advies	8,76820	-11,50134	10,23697
Zelf beleggen	6,55227	57,95567	-28,54030
Robo-advies	-15,53000	-29,64406	-7,22896
NONE	-142,62925	155,08468	-79,86054

Attribute Importances			
Risico	9,93398	15,84155	39,38439
Jaarlijks bruto rendement	53,16232	31,75286	35,34549
Jaarlijkse kosten	26,54370	25,06509	10,66469
Merknaam	5,50035	9,82056	3,79092
Wijze van beleggen	4,85964	17,51995	10,81452

t Ratios			
Niveau 1	2,82576	2,33666	13,35957
Niveau 4	1,22371	0,27284	5,60829
Niveau 7	-4,56756	-3,08580	-16,75065
3%%	-13,39162	-4,81625	-15,96744
6%%	1,46363	1,22604	6,63228
9%%	14,57342	4,40975	11,35271
0,5%%	10,90020	6,35321	5,76476
1,25%%	0,09713	-2,98326	0,08215
2%%	-9,97853	-1,93481	-5,40603
Centraal Beheer	-0,39401	0,08186	-0,63641
Robeco	2,73062	-1,99271	-1,65892
Rabobank	-2,35329	2,23220	2,39662
Beheerd beleggen	0,03118	-1,10137	4,40105
Beleggen onder advies	1,28581	-0,73234	1,76677
Zelf beleggen	0,94683	4,65477	-4,59239
Robo-advies	-2,21643	-1,75628	-1,21621
NONE	-7,61237	10,53087	-8,50373

Standard Errors			
Niveau 1	0,12504	0,33604	0,09491
Niveau 4	0,09642	0,25012	0,07008
Niveau 7	0,10319	0,27657	0,09916
3%%	0,17010	0,37413	0,09692
6%%	0,09747	0,26044	0,07036
9%%	0,14651	0,33621	0,09522
0,5%%	0,10067	0,25091	0,06829
1,25%%	0,08954	0,33475	0,06981
2%%	0,11084	0,30773	0,07388
Centraal Beheer	0,08930	0,23395	0,07058
Robeco	0,09005	0,25969	0,07143
Rabobank	0,08954	0,22325	0,06819
Beheerd beleggen	0,11156	0,31576	0,08629
Beleggen onder advies	0,11322	0,32490	0,08618
Zelf beleggen	0,11489	0,25758	0,09243
Robo-advies	0,11633	0,34919	0,08841
NONE	0,31107	0,30466	0,13968

Question	Segment 1	Segment 2	Segment 3
Q1 Age			
Average	37	41	34
Q2 Gender			
Male	84%	75%	67,7%
Female	12%	18,8%	32,3%
Other	4%	6,3%	0%
Q3 Education			
MBO	4%	6,3%	6,5%
HBO Bachelor	20%	31,3%	41,9%
WO Bachelor	4%	0%	1,6%
WO Master	44%	31,3%	38,7%
Post-Doc	26%	18,8%	9,7%
Other	2%	12,5%	1,6%
Q4 Income			
€ 0,- till 20.000,-	14,6%	12,5%	28,6%
€ 20.000,- tot 35.000,-	12,5%	18,8%	28,6%
€ 35.000,- tot 65.000,-	22,9%	12,5%	28,6%
More than € 65.000,-	50%	56,3%	14,3%
Q5 Savings in terms of monthly salary			
Average	11,3	15	6,31
Q6 Savings as a buffer			
No minimum	16,3%	25%	3,6%
1-6 months	14,3%	12,5%	12,5%
7-12 months	24,5%	6,3%	16,1%
More than 12 months	8,2%	0%	10,7%
Did not think about it	36,7%	56,3%	57,1%
Q7 Experience with investing (Multiple answers possible)			
I have created my own investment portfolio	60%	43,8%	14,1%
I outsourced my investments	6%	6,3%	4,7%
I have invested under advice	2%	6,3%	4,7%
I have invested in an investment fund	26%	37,5%	20,3%
Other	0%	6,2%	1,6%
I have never invested before	26%	12,5%	57,8%
Q8 Channel preference (Multiple answers possible)			
Bank	38%	18,7%	37,5%
Investment specialist	58%	43,8%	35,9%
Insurance company	2%	6,2%	9,4%
Other	4%	18,7%	3,1%
None	20%	37,5%	35,9%
Q9 Deposit money preference			
Once	22%	37,5%	34,4%
Periodic	56%	37,5%	32,8%
No preference	22%	25%	32,8%
Q10 Reasons to invest (Multiple answers possible)			
More money	78%	56,3%	60,9%
Specific financial goal	8%	18,8%	3,1%
Sensation	22%	18,7%	12,5%
Not needing the money on short term	42%	62,5%	28,1%
Protecting my assets	14%	18,7%	10,9%
Complement to pension	24%	25%	27,2%
Other	4%	0%	0%
I do not invest	12%	18,7%	31,2%
Q11 Reasons to not invest (Multiple answers possible)			
No time	16%	25%	20,3%

No knowledge	32%	12,5%	39,1%
Risk	26%	31,3%	45,3%
No trust in the market	8%	31,3%	9,4%
The need to directly access money	20%	37,5%	18,8%
Investing is only for the rich	6%	0%	9,4%
Other	16%	12,5%	9,4%
Q12 Important sources playing a role while investing (Multiple answers possible)			
Internet	74%	68,8%	71,9%
Own network	32%	50%	43,7%
Media	32%	37,5%	17,2%
External advisor	8%	12,5%	32,8%
Supplier of the investment fund	44%	25%	39,1%
Other	8%	0%	0%
None	10%	18,7%	6,3%
Q13 Transparency in investment propositions			
Average	3,74	3,62	3,50
Q14 Financially literate			
Average	5,18	5,13	4,26
Q15 Risk aversion			
Average	3,08	3,47	4,24

Question	**Sig. different between segments**
Q1 Age	,117
Q2 Gender	,411
Q3 Education	**,024**
Q4 Income	**,000**
Q5 Savings in terms of monthly salary	,367
Q6 Savings as a buffer	**,040**
Q7 Experience with investing (Multiple answers possible)	
I have created my own investment portfolio	**,000**
I outsourced my investments	,942
I have invested under advice	,271
I have invested in an investment fund	,352
Other	,213
I have never invested before	**,000**
Q8 Channel preference (Multiple answers possible)	
Bank	0,336
Investment specialist	0,63
Insurance company	0,271
Other	**0,40**
None	0,146
Q9 Deposit money preference	0,846
Q10 Reasons to invest (Multiple answers possible)	
More money	0,100
Specific financial goal	**0,083**
Sensation	0,403
Not needing the money on short term	**0,029**
Protecting my assets	0,693
Complement to pension	,615
Other	,200
I do not invest	**,046**

Q11 Reasons to not invest (Multiple answers possible)	
No time	0,700
No knowledge	0,129
Risk	0,095
No trust in the market	**0,030**
The need to directly access money	0,254
Investing is only for the rich	0,402
Other	0,571
Q12 Important sources playing a role while investing (Multiple answers possible)	
Internet	0,916
Own network	0,310
Media	0,098
External advisor	**0,003**
Supplier of the investment fund	0,405
Other	**0,037**
None	0,300
Q13 Transparency in investment propositions	0,799
Q14 Financially literate	**0,015**
Q15 Risk aversion	**0,002**

A10 Market Simulation

Holdout 1	Shares of Preference LCA	Shares of Preference Count
A	58,90 %	59,09 %
B	11,81 %	10,61 %
C	19,42 %	23,48 %
None	9,86 %	6,82 %

Holdout 2	Shares of Preference LCA	Shares of Preference Count
A	61,07 %	65,15 %
B	10,15 %	6,06 %
C	16,61 %	17,42 %
None	12,17 %	11,36 %

Label	Risico	Jaarlijks bruto rendement	Jaarlijkse kosten	Merknaam	Wijze van beleggen
CB	1.86	2.0267	1.2	Centraal Beheer	Zelf beleggen
RABO	2.08	2.1533	1.4933	Rabobank	Beheerd beleggen
ROBE	2.33	1.8667	2.0533	Robeco	Zelf beleggen

Shares of preferences | Investing in your own				
Label	**Total**	**Segment 1**	**Segment 2**	**Segment 3**
Centraal Beheer	39,12 %	51,58 %	40,85 %	29,27 %
Rabobank	44,17 %	35,51 %	4,06 %	60,45 %
Robeco	5,83 %	10,54 %	0,19 %	3,63 %
None	10,88 %	2,36 %	54,90 %	6,65 %

Label	Risico	Jaarlijks bruto rendement	Jaarlijkse kosten	Merknaam	Wijze van beleggen
CB	1.86	2.0267	1.2	Centraal Beheer	Beheerd beleggen
RABO	2.08	2.1533	1.4933	Rabobank	Beheerd beleggen
ROBE	2.33	1.8667	2.0533	Robeco	Zelf beleggen

Shares of preferences | Outsourcing investment				
Label	**Total**	**Segment 1**	**Segment 2**	**Segment 3**
Centraal Beheer	45,44 %	50,58 %	13,76 %	49,22 %
Rabobank	32,35 %	29,52 %	8,34 %	40,30 %
Robeco	9,09 %	17,28 %	1,47 %	4,73 %
None	13,13 %	2,62 %	76,43 %	5,75 %

Shares of preferences | Robo-Advice				
Label	**Total**	**Group 1**	**Group 2**	**Group 3**
Centraal Beheer	35,60 %	42,44 %	11,05 %	36,37 %
Rabobank	42,72 %	38,87 %	10,84 %	53,37 %
Robeco	8,48 %	16,13 %	1,38 %	4,41 %
None	13,19 %	2,56 %	76,74 %	5,84 %

Shares of preferences | Investing under advice				
Label	**Total**	**Group 1**	**Group 2**	**Group 3**
Centraal Beheer	43,62 %	52,98 %	15,50 %	43,35 %
Rabobank	36,92 %	31,63 %	9,53 %	47,56 %
Robeco	7,14 %	13,32 %	1,21 %	3,90 %
None	12,32 %	2,06 %	73,75 %	5,19 %