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Young People's Preferences for Financial versus Non-Financial Attributes of Pension Funds

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Abstract

This thesis examines the preferences of young Dutch people for pension funds. The utility that young Dutch people derive from the attributes of pension funds help us to gain knowledge about their pension preference structures. To address this objective we carried out focus group discussions, in-depth interviews and a conjoint experiment to identify the importance that young people attach to the financial and non-financial attributes of a pension fund. Our results show that certain attributes are significant drivers of young people's utility of pension funds. On average, young people find financial attributes, such as coverage ratio and past investment returns, more important than the non-financial attribute: Socially Responsible Investing. Comparisons between demographic groups show that the factors age, gender and (financial) education have a significant influence on the pension fund preferences of Dutch (young) people. Also, we find that risk-aversion has a significant influence on the pension fund preferences of Dutch (young) people, while overconfidence has not.

Keywords: Young Dutch people, pension fund, preferences, age, gender, education, risk-aversion, overconfidence

Preface

This master thesis is the final step of the Master of Science program on Finance-Marketing. This final thesis was written between August 2010 and April 2011. Writing my master thesis on pension funds is motivated by my personal interest in financial products, such as pension plans, and the psychological biases which tend to affect consumer decisions, and therefore decision-makers' preferences for pensions. Thanks to close cooperation with APG, I have been able to collect qualitative and quantitative data, and I received great support from many APG employees. I am grateful to the people who supported and helped me while writing my thesis. I would like to thank my thesis supervisor Dr. ir. Nikos Kalogeras for motivating me to work on this project, and his hard work in providing me with the guidelines on how to conceptualize the behavior of young Dutch people. His revisions as well as his corrections were of great help to me. Moreover I would like to express my gratitude to Mr. Beerens and Mr. Sevarts from APG for their support and help throughout my data collection period.

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Chapter 1: Introduction

1.1 Background

There is growing interest among practitioners and academics to find solutions to the pension crisis attributable to changing demographic factors such as lower birth rates, improved health care, and increased longevity (Millar & Devonish, 2009; World Bank, 1994; Banks & Blundell, 2005). Due to these developments many countries are realizing the financial burden these socio-economic developments have on the sustainability of the current pension systems (Millar & Devonish, 2009). "A pension is a representative of a long standing obligation to retirees to support sustainability of their consumption in retirement" (Millar & Devonish, 2009: pp. 299). It is no wonder that there is a worldwide shift observed from Defined Benefit (DB) to Defined Contribution (DC) schemes (Benartzi & Thaler, 2007; Byrne, 2007; Thaler & Benartzi, 2004). There is a trend towards giving people more freedom of choice in pension funds and pension plans (Mitchell & Utkus, 2003), while pension providers and employers are limiting their responsibilities and risks. A DB scheme means each employee is promised a pension benefit that is typically a function of his years of service and his average or final salary (Benartzi & Thaler, 1995). The employer, not the employee, is the residual claimant for the pension. A DC scheme provides a retirement benefit that is dependent on the amount of money contributed throughout the participants' working years and the financial performance of the fund (Lacomba & Lagos, 2009). The employee therefore has more responsibilities and risks. Participant-managed DC schemes are the main feature of national pension reforms which have been implemented in countries such as Germany, Sweden and Russia (Mitchell & Utkus, 2003). Also in the Netherlands, several corporate pension funds are shifting the risk of price movements in financial markets toward the employees by a changeover from a DB to a DC pension scheme (Kooreman & Prast, 2010).

An assumption about behavior is underlying this global movement of stimulating participant choices: it is assumed that the person who has the responsibility of choice is a well-informed and rational economic agent, which maximizes its self interest. It is assumed that the agent is able to understand and interpret information presented regarding options offered by governments and employers, correctly evaluates and weights these choices, and then makes an accurate decision taking into account all alternatives (Mitchell & Utkus, 2003). Basically, people are assumed to make good decisions and to stick to them (Laibson, Repetto & Tobacman, 2002). This assumption is rather idealistic, and in general not realistic. Particularly in regard to saving for retirement (Laibson, Repetto & Tobacman, 2002). Many

people do not always make wise investment decisions, nor do they take advantage of savings opportunities provided to them (O'Neill, 2007). Behavioral finance researchers believe that investors act emotionally instead of rationally, and therefore are prone to mistakes that harm their own self-interest. (Carty, 2005; O'Neill, 2007). There are several explanations for the irrational behavior of people with regard to their retirement decisions and preferences.

First, many people have a lack of financial knowledge. Some problems and decisions are just too complex for individuals to understand and deal with on their own, such as investment choices (Lusardi & Mitchell, 2005). Bernheim (1998), Hogarth et al. (2003) and Lusardi and Mitchell (2005) found that US citizens do not understand basic financial concepts like interest calculations, and people often fail to understand pension plans and loans, such as mortgages. Van Rooij, Kool and Prast (2007) found that only 20 percent of Dutch employees consider themselves as knowledgeable, while 50 percent regard themselves to be financially very incompetent. Only 40 percent provided correct answers to five very simple questions on basic financial knowledge.

Once people have the opportunity to make their own investment choices for their pension, a general lack of financial sophistication / education among people might cause them to take too few or too many risks, or to simply make the wrong investment decisions (Lusardi, 2008). Also, people might underestimate the amount of funds they will need after retirement, which might cause them to safe too little. Empirical research shows that individuals on average are not good at the retirement savings problem. Relatively few people feel that they are able to plan effectively for their retirement (Lusardi, 2008). Indeed, past surveys (e.g. EBRI, 2003) found that 30 percent of US workers have not saved anything for retirement, 40 percent have tried to calculate how much money they will need after retirement and 20 percent feels very confident about having sufficient retirement money to live comfortably. These findings strengthen the case for protection and guidance.

Second, there is a systematic gap between people's intentions and actions (Laibson, Repetto & Tobacman, 2002). For example, people commit to eat healthier, stop smoking and exercise more regularly, but many of these promises fail. According to Laibson, Repetto and Tobacman (2002) such failures arise in problems involving delayed gratification. People tend to succumb to the temptation of instantaneous gratification, caused by a lack of self-control. The gap between intentions and actions is evident in the behavioral life-cycle theory, which assumes that wealth is divided into three mental accounts: current assets, current income and future income. The temptation to spend is assumed to be greatest for current income and least for future (retirement) income (Shefrin & Thaler, 1988).

According to Shefrin (2002) many people are myopic, and therefore they tend to pay insufficient attention to their retirement because it seems too far off. Often, too much attention is given to most recent events, at the expense of the long-term picture. Young people tend to be more myopic than old people (Shefrin, 2002). Consequently, young people have little interest in their retirement as their retirement dates are far away in the distant future. Survey data (e.g. Farkas & Johnson, 1997) showing actual and normative retirement saving rates provide evidence for the gap between intentions and actions. According to Farkas and Johnson (1997) 76 percent of US workers believe that they should be saving more for retirement. The authors conclude: "The gaps between people's attitudes, intentions and behavior are troubling and threaten increased insecurity and dissatisfaction for people when they retire. People are simply not doing what logic – and their own reasoning – suggests that they should be doing" (Farkas and Johnson, 1997: p 27).

Behavioral finance researchers have identified many other errors in thought patterns that explain why people behave irrational and make investment decisions that harm their own self-interest (O'Neill, 2007). One frequently cited error is called *status quo bias*, which means that people tend to keep things as they are (Belsky & Gilovich, 1999). Perhaps they avoid positive behaviors such as increasing savings because they prefer their current consumption pattern (Charupat & Deaves, 2004), or they do not take investment losses because they do not want to confirm to an investment mistake (Carty, 2005). People often "choose not to choose", which is called the *default effect*. The default effect is especially prominent in retirement saving (Kooreman & Prast, 2010). Defaults play a role in pension portfolio choice, the retirement savings rate, the withdrawal of pension wealth and pension plan participation. Beshears et al. (2006) shows that over 90 percent of employees immediately participate in a pension plan in the case of automatic enrollment. If instead, there is the case of automatic non-enrollment, employees hesitate to enroll. Another type of bias in decision making is people's sensitivity to the *framing* of a decision problem (Kooreman & Prast, 2010). There are many types of framing effects. One example is the fact that people prefer the choice in the (literal) middle. Benartzi and Thaler (2001) found that participants in defined-contribution schemes avoid extremes, either by choosing the middle portfolio when offered three, or by allocating an amount of money equally over all the portfolios. Van Rooij, Kool and Prast (2007) found similar results for Dutch people.

Eventually, due to a general lack of financial knowledge, a gap between people's intentions and actions and many other behavioral biases (i.e. errors in thought patterns), many people may receive too little retirement income, thereby harming their own self-interest

(Benartzi & Thaler, 2002; Laibson, Repetto and Tobacman, 2002; O'Neill, 2007). Bernheim (2001) shows that workers in the United States experience an unexpected decline in their standard of living after they retire. This consumption drop is even higher in the United Kingdom (Banks et al., 1998). Moore and Mitchell (2002) show that 30 percent of US pre-retirees are fully prepared for retirement at age 65. Only 30 percent of the remaining group is likely to close the savings gap by age 65, while 40 percent are very unlikely to achieve a good standard of retirement income by age 65. These numbers show the importance of the problem of insufficient retirement savings.

With the increase of DC plans this problem is expected to increase even further, as responsibilities and risks are shifting more and more from employers and pension providers to employees. According to Laibson, Repetto and Tobacman (2002), employees that participate in a DC plan are much more induced to withdraw their accumulating balances or to contribute an insufficient amount to their plan, than employees that participate in a DB plan. A DB plan protects employees from their immediate gratification due to a lack of self control. This protection is lacking in a DC plan, which increases the likelihood of insufficient retirement benefits. With the growth of individualized DC schemes, people's decisions to save and invest in their retirement plans are becoming crucial for sufficient retirement benefits (Mitchell & Utkus, 2003). Due to these developments, governments, economists and pension providers are putting more effort into understanding the pension preferences of people and the factors which drive their preferences structures. When optimally meeting people's expectations and preferences for pension plans, a higher participation in pension plans could be realized (Laibson, Repetto & Tobacman, 2002) and saving rates could increase (Benartzi and Thaler, 2004). This might also be the case for pension funds that meet the expectations and preferences of the young Dutch people (i.e. (future) pension consumers). Dutch pension providers have a "care-duty" (zorgplicht): they are to protect their clients' interests. The same applies to the Dutch banks, financial advisors and insurance companies (Kooreman & Prast, 2010).

This thesis focuses on the young Dutch people, as young people are a difficult target group for pension funds (Mitchell & Utkus, 2003), caused by their low interest in pensions (Lusardi, 2008) and behavioral biases (Shefrin, 2002). Young people, more than old people, tend to act emotionally rather than rational, causing them to make decisions that harm their own self-interests. O'Neill (2007) shows that young people often participate the least in pension plans, and a study by Cigna Retirement & Investment Services found that 33 percent of people younger than 25 years of age, fail to participate in company-sponsored pension

plans (Chu, 2004). When knowing what preferences Young Dutch people have for pension funds, pension providers could meet their expectations, while protecting them from their behavioral biases reflected in emotional rather than rational choices. Eventually this may lead to higher pension saving rates and ultimately higher retirement benefits for our current and future generations. This forms the main motivation of this thesis.

1.1 Research question

The research question addressed in this thesis is:

What are young people's preferences for financial versus non-financial attributes of pension funds?

We study young people's preferences for financial and non-financial attributes that make up a pension fund, and that are believed to be important for young people. We research preferences for financial and non-financial attributes separately as our objective is to find the importance that young people assign to financial and non-financial benefits. We research whether young people expect pension providers to focus mainly on their financial performance, or whether there are non-financial pension fund attributes which are (more) important for young people. We base this approach on previous research, focusing on behavioral decisions such as hedonic and utilitarian choice (Hirschman & Holbrook, 1982; Babin, Darden & Griffin, 1994; Khan & Dhar, 2004; Chernev, 2004). These decisions focus on the choice of consumers between utilitarian and hedonic (i.e. non-utilitarian) attributes, which can play an important role in consumer choices. Utilitarian attributes are viewed as functional and instrumental, whereas hedonic attributes are more experimental, which therefore cannot be expressed in financial terms (Hirschman & Holbrook, 1982). According to Khan and Dhar (2004) the choices between hedonic and utilitarian attributes are driven by emotions, while Chemev (2004) supports the notion of goal-attribute compatibility, whereby consumers tend to overweight the attributes that are equal to their active goals: goals which satisfy immediate needs, aimed at achieving positive outcomes. Also, we research to what extend young Dutch people make rational or emotional decisions with respect to their pension fund preferences, and to what extent these preferences can be explained by demographic and behavioral factors.

Our empirical study deals with the preference structures for a pension fund for young Dutch people, whose ages range between 18 to 30 years old. To address this issue, we collect relevant information through qualitative (focus-group discussions; in-depth interviews) and quantitative (a survey tool) data gathering instruments.

1.2 Relevance of the study

This study may reveal useful insights for scholars and practitioners on young people's preferences for pension funds. This study is important since if we do not know from what attributes young Dutch people derive utility, then we may fail to address what drives their willingness to invest (more) in their pension. Participants' decisions to save and invest in their retirement plans are crucial for sufficient retirement benefits (Mitchell & Utkus, 2003; Lusardi, 2008), and are becoming more important due to the worldwide increase of DC plans (Laibson, Repetto & Tobacman, 2002).

1.2.1 Theoretical motivation

Our study may contribute to the existing literature, which is very scarce, on pension preferences. We build on the research results of van Rooij, Kool and Prast (2007). These authors have showed the pension preferences of Dutch people by using a survey of around 1000 Dutch citizens. Van Rooij, Kool and Prast (2007) examined Dutch people's preferences for one attribute of pension funds: the pension plan. Various surveys (e.g. The Society of Actuaries, 2004) also examined this attribute by comparing people's preferences for DB plans versus DC plans. Benartzi and Thaler (2001) researched people's preferences for portfolios that varied in terms of risk and return due to different percentages allocated to equities. Several authors have researched consumer or investor preferences for other attributes such as "past investment performance" (Ramasamy & Yeung, 2003; Gözbaşı and Çıtak, 2010) and "Socially Responsible Investing" (Vyvyan, Ng and Brimble, 2007), however these preferences were researched in relationship with hedge or mutual funds, not for pension funds.

Millar and Devonish (2009) have researched the attitudes, saving choices and investment preferences of people toward pensions and retirement planning. However, they did not research people's preferences for pension fund attributes. Very few authors researched people's preferences for pension fund attributes. One of them is Gupta (2006), who researched in how far employees participating in a pension scheme care about pension risk; the level of funding of a pension fund, and finds that employees do care about the level of funding of their benefits scheme. We hope to contribute to Gupta (2006), and other past research, by researching the preferences of young Dutch people for multiple financial and non-financial attributes. Our research is unique as it combines multiple financial and non-financial pension fund attributes, while past research on pension preferences mainly focused on people's preferences for pension plans or other personal retirement preferences.

By comparing young Dutch people's preferences for financial and non-financial pension fund attributes, we hope to contribute to previous research on behavioral decisions, such as hedonic and utilitarian choice (Hirschman & Holbrook, 1982; Babin, Darden & Griffin, 1994; Khan & Dhar, 2004; Chernev, 2004). We hope to contribute to these studies by applying hedonic and utilitarian choice to the pension domain.

We research the pension fund preferences of young Dutch people, as well as the behavioral factors (i.e. biases) which might influence these preferences. Behavioral finance researchers believe that investors act emotionally instead of rationally, and have identified a number of behavioral biases that explain why people make investment decision that harm their self-interest (e.g. Belsky & Gilovich, 1999; Carty, 2005). Kahneman and Tversky illustrate examples of rational decision making and indicating preferences, and Carty (2005) researched to what extent investors make rational decisions. We hope to contribute to this literature by researching the rational behavior of young Dutch people, revealed in their pension fund preferences. Van Rooij, Kool and Prast (2007) have researched the influence of a behavioral bias, risk aversion, on pension plan preferences. Benartzi & Thaler (1995), Holt and Laury (2002) and Shefrin, (2002) conducted experiments about repeated investment decisions over time, in the context of retirement saving decisions. The authors found that risk aversion risk aversion has an impact on the retirement decisions of individuals. To the best of our knowledge, no research has investigated the influence of behavioral biases on pension fund preferences.

A unique aspect of our study is that we focus on the younger population of the Netherlands (age 18 until 30), while van Rooij, Kool and Prast (2007) for example used a more general database by surveying Dutch employees, job-seekers and students aged 18 and older. Also, while previous research mainly focused on the US population (e.g. The Society of Actuaries, 2004; Vyvyan, Ng and Brimble, 2007), our research focuses on the pension fund preferences of the Dutch population instead of the US population. By focusing on the young Dutch people we expect to find more detailed and useful information about specific pension fund preferences in the Netherlands.

1.2.2 Managerial motivation

A pension provider may achieve access in the market place when it focuses on its (future) customers. According to Campbell (1997) in each buyer-seller relationship it is important that the attitudes and expectations of both buyers and sellers are understood. In our case the buyers

are the young Dutch people and the sellers are the pension providers that "sell" pension plans to the young Dutch people.

A pension fund provider's ultimate goal is to provide optimal retirement benefits to its customers, while offering excellent service and communicating effectively. These objectives can only be reached when a pension fund provider listens to its (future) customers' needs and demands, reflected in preferences. Information retrieved through market participants' preferences is very important and worthwhile to consider, as through the assessment of these preferences one may be able to predict (future) customers' preferences. These preferences may help to predict market response (Bettman, Luce & Payne, 1998). Preferences are driven by variables or attributes that describe the (competitive) environment (Bettman, Luce & Payne, 1998). In this research we measure young Dutch people's preferences for pension funds, by measuring their preferences for financial and non-financial attributes. When relying on the findings provided by this thesis, pension fund providers may be able to develop policies or products that satisfy the needs and demands of the young Dutch people: market response could be predicted.

Informed pension providers (and governments) might be able to manipulate financial behavior through strategies that help overcome behavioral mistakes (O'Neill, 2007). These strategies, in turn, can have a powerful impact on the future financial security of those affected by them, as saving rates and retirement benefits might increase (O'Neill, 2007). Due to behavioral biases young people are a difficult target group (Shefrin, 2002) and as the young Dutch people are an important (future) target group for pension providers, this thesis may provide useful insights.

1.3 Thesis outline

After this introductory section, chapter 2 elaborates on relevant theories underlying the proposed research objectives; non-financial and financial attributes, and behavioral factors. Chapter 3 presents the decision context, in which the Dutch pension system, Dutch pension funds and the pension plans in the Netherlands are explained, and the developments of the current system are discussed. Chapter 4 describes the conceptual model and the methodology, while in chapter 5 the research design is explained. Chapter 6 presents the analysis, while in chapter 7 a discussion including main conclusions, managerial and theoretical implications, limitations and suggestions for future research are drawn.

Chapter 2: Theoretical Background

This study focuses on the potential utility that young Dutch people may derive from financial and non-financial attributes of a pension fund. Therefore the review of the different literature streams focuses on the reviewing of theoretical advances regarding the relevant financial and non-financial attributes that may contribute to overall preferences for pension funds. Moreover, we study factors that are expected to influence these preferences. First, we discuss financial and non-financial pension fund attributes. Second, we discuss four behavioral factors which may influence young Dutch people' pension preferences.

2.1 Attributes of pension funds

The selection of a pension fund which provides the highest amount of utilities to its users could be considered as a complex process, because there are many (behavioral and demographic) factors that contribute to the formation of people's preferences of pension funds. Through this research we attempt to examine the utility assigned to different financial and non-financial attributes of pension funds. We use pension fund attributes to form these pension funds. These attributes can be financial or non-financial, and are all expected to be related to the pension fund's ultimate financial and non-financial performance. We research preferences for financial and non-financial attributes separately as our objective is to find the importance young Dutch people assign to financial and non-financial benefits. We base this approach on previous research, focusing on behavioral decisions such as hedonic (non-utilitarian) and utilitarian choice (Hirschman & Holbrook, 1982; Babin, Darden & Griffin, 1994; Khan & Dhar, 2004; Chernev, 2004). These behavioral decisions focus on the choice of consumers between hedonic and utilitarian attributes. Utilitarian attributes are described as "practical" and are associated with necessary functions in life (such as money), while hedonic attributes are associated with non-financial, pleasure-oriented and experiential consumption (Strahilevitz & Myers, 1998).

The following paragraphs will provide a literature review to identify the attributes that we expect that young Dutch people derive utility from, and hence attach high importance to them. Based on this literature review we have identified ten attributes which we expect to influence young Dutch people's preferences for pension funds. These ten attributes and attribute levels are stated in table 1. Also, based on the literature review we try to identify the rational, rather than emotional, preferences for the different levels of each attribute.

Table 1: Financial and non-financial attributes for pension funds

Attributes	Attribute levels (alternatives)
Financial	
Monthly pension premium	1. 18 %
	2. 21 %
	3. 24 %
Current investment performance	1. Steady growth of 2 %
	2. Impressive performance in the last year of 5 %
	3. Supernormal growth in the last 3 years of 7 %
Past investment performance (last 25 years)	1. 4 %
	2. 7 %
	3. 10 %
Coverage ratio	1. 90 %
	2. 105 %
	3. 120 %
Fund's total investment portfolio	1. < 10 Billion €
	2. 10-50 Billion €
	3. > 50 Billion €
Number of participants managed by the fund	1. < 250.000
	2. 250.000 – 1.000.000
	3. > 1.000.000
Advising costs	1. 100 € per conversation
	2. 200 € per conversation
	3. 300 € per conversation
Administrative expenses (in % of total pension fund assets)	1. 0.1 %
	2. 0.6 %
	3. 1.2 %
Pension plan type	1. DB
	2. DC
	3. Mixed
Non-financial	
Socially Responsible Investments	1. Yes
	2. No

2.1.1 Financial attributes

Current & Past investment performance

Pension funds all over the world have experienced spectacular losses in investment performance since the beginning of the financial crisis in late 2008. The OECD estimates the losses of pension funds in OECD countries to be $5.4 trillion or about 20 percent of the value of assets in these countries in 2008 (Antolin & Stewart, 2009). A focus on short-term nominal returns on investments, however, is not the best way to measure a pension fund's performance (Campbell & Viceira, 2002; Hinz et al., 2010). Funds with good short-term performance are not necessarily those best aligned with the long-run performance of a pension system (Hinz et al., 2010). The literature on strategic asset allocation provides several examples of cases in which short-term asset allocation conflicts with longer-term objectives, including

international portfolio diversification, currency hedging strategies and the selection of the risk-free asset. In general, no assurances can be given that competition in the short-term will result in long-term optimal asset allocation (Campbell and Viceira, 2002). Also a long-term view includes economic trends and therefore may provide a more realistic estimate of the expected future long-term performance of the pension fund. The past investment performance of a pension fund is therefore expected to be a better performance measure than its current investment performance.

Tapia (2008) provides OECD calculations of real investment returns of pension funds per economy (provided in the appendix: available upon request). The geometric mean investment returns for Dutch pension funds are 6.1 percent over the years 1993 to 2005. The mean returns of Sweden (6.2%) are quite equal to those from the Netherlands, although those from the United Kingdom are quite different (8.7%) perhaps due to the larger time period (years 1982 to 2005) on which the means are calculated. The research results from Srinivas, Whitehouse and Yermo (2000) show a slightly different picture (provided in the appendix: available upon request), which might also be caused by a different dataset with according period. According to Srinivas, Whitehouse and Yermo (2000) the Netherlands on average had actual returns of 8.0 percent over the years 1984 to 1996. Ireland had actual returns of 11.0 percent and the United Kingdom reached 10.0 percent on average. Although both datasets are not entirely up to date, they do show investment returns on a long horizon which, as explained before, is what gives the best indication of actual performance.

The literature on pension fund preferences of (young) people is rather limited. There is, however, a large review of literature on mutual funds which reveals that the most considered criterion in assessing a mutual fund is "past investment performance". Research has examined the effects of the past performances of mutual funds on their future performance. Grinblatt and Titman (1992) demonstrated that the past performance of 279 funds in the period between 1974 -1984 constituted a sound reference for the future. Goetzman and Ibbotson (1994) analyzed 728 mutual funds in the US for the period between 1976- 1988 to arrive at a similar result. Brown and Goetzman (1995) and Carhart (1997) also obtained partially similar results in their studies. Ramasamy and Yeung (2003) found that past performance was the most significant attribute considered by Malaysian investment advisors in selecting mutual funds. Similar results were found by the researchers Gözbaşı and Çıtak (2010), which evaluated the attributes considered by investment professionals in selecting mutual funds. In contrast, Philpot et al. (1998) examined bond mutual funds and proofed that past performance cannot estimate future performance. Based on this literature we propose that

the attribute "past investment performance" plays a significant role in young people's preference structures for pension funds, while the attribute "current investment performance" is less important. As the (current or past) investment performance of a pension fund directly relates to a pension fund's financial performance, a rational person would prefer a pension fund with a high investment performance over a pension fund with a medium or low investment performance.

Coverage ratio

An important financial measurement for pension funds is the coverage ratio: the relationship between liabilities and assets (Bauer, Hoevenaars & Steenkamp, 2006). The coverage ratio of a pension fund is equal to $1 + (S/L)$. Where Surplus (S) refers to the pension (and possibly other) obligations of the fund, and Liabilities (L) indicates the financial health of the fund. (Bauer, Hoevenaars & Steenkamp, 2006). The future financial position, and therefore the coverage ratio, of a fund is dependent on certain key (exogenous) economic variables like interest rates and inflation, and the content of three (endogenous) policy decisions: contribution, indexation and investment policy. A coverage ratio of 100 percent means that the value of the available assets of a pension fund is equal to the value of the nominal liabilities, and therefore the surplus is zero.

According to Mercer (2010), the coverage ratio of a pension fund is dependent on many factors such as investment returns, premiums, interest changes and pension payments. Mercer (2010) researched the development of the average Dutch coverage ratio in 2009, specified to a number of causes. In 2009 premium had a positive influence on the coverage ratio, mainly because the premiums are based on the covering of costs. Some funds with high coverage ratios have given premium-discounts, while a few funds demanded extra premiums from its participants. The effect of pension payments and alimonies were small. The influence of interest rate changes was positive in 2009. As 2009 was a successful investment-year, the investment returns have the highest positive influence on the coverage ratio in 2009. The other causes are mainly the trend of a larger number of deaths, which have a negative effect on the coverage ratio of approximately 4 percent (Mercer, 2010).

All Dutch pension funds need to report to "De Nederlandsche Bank" (DNB), which has set a coverage ratio of 105 percent as a minimum for each Dutch pension fund, to protect pension participants from insufficient pension coverage (DNB, 2010). Not all Dutch pension funds reach this target. Due to the financial crisis, the average coverage ratio of Dutch pension funds has dropped significantly during 2008 from 144 to 95 percent. In the fourth quarter of

2010 169 Dutch pension funds had a coverage ratio lower than 105 percent, 158 pension funds had a coverage ratio of 105 – 130 percent, and 20 pension funds had a coverage ratio higher than 130 percent (DNB, 2010).

There is a lack of research about the influence of coverage ratio on the preference structures of young Dutch people. However, as the coverage ratio is a very important attribute, which indicates the financial health of a pension fund (Bauer, Hoevenaars and Steenkamp, 2006), we expect the attribute "coverage ratio" to play a significant role in young people's preference structures for pension funds. As the coverage ratio indicates the financial health of a fund (Bauer, Hoevenaars & Steenkamp, 2006), a rational person would prefer a pension fund with a high coverage ratio over a pension fund with a medium or low coverage ratio.

Administrative expenses & Advising costs

A significant factor that has an effect on the overall performance of pension funds to provide retirement income is expenses. A pension funds incurs many different expenses, such as administrative expenses and advising costs (Hinz et al., 2010). Most of these expenses are, although in different ways, (in)directly transferred to the participants of the fund, and should therefore be of considerable importance for pension participants (Carhart, 1997). Administrative expenses reduce the rate of return on the investments of pension funds and consequently increase the cost of retirement security substantially (Bikker & de Dreu, 2006; Bateman & Mitchell, 2004). Bikker and de Dreu (2006) research how, under certain conditions, administrative costs erode retirement benefits. An increase in annual administrative costs of 1% of pension fund assets imply a cumulated reduction of 27% of eventual pension benefits or, equivalently, an increase of more than 37% in pension costs (Bikker & de Dreu, 2006; Bateman, Kingston and Piggot, 2001). The figure showing these results is displayed in the appendix: available upon request.

According to Hinz et al. (2010), advising costs are part of the expenses pension funds incur, and therefore could have an effect on people's pension fund preferences. Haslem (2003) also shows that advising costs are part of pension funds' expenses. However, according to Bikker and de Dreu (2006), pension funds' administrative expenses are more important expenses as these costs are directly transferred to the end-consumers: the pension fund participants. According to Bikker and de Dreu (2006), in the Netherlands annual administrative costs typically lie between 0.1 percent and 1.2 percent of pension fund's total assets (provided in the appendix: available upon request). This relatively high spread is

remarkable and might be worrying. However the average level is very low compared to other countries (Bateman and Mitchell, 2004; Dobronogov and Murthi, 2005). Bikker and de Dreu (2006) show that Dutch pension funds experience economies of scale as administrative expenses tend to decline when total assets increase. Opinions differ between researchers about the existence of economies of scale in pension funds. However this discussion is beyond the scope of this paper.

Despite from the causes and effects of pension fund expenses, a clear negative relationship between expenses and fund performance is observed by pension fund researchers. Research on mutual funds has also resulted in a strong negative relationship between expense ratios and performance. Carhart (1997) and Grinblatt and Titman (1989) formed the foundations of the inverse relationship between mutual fund performance and expense ratios, and many have followed (Otten & Bams, 2002; Haslem, 2003; Madura, 2006; Rompotis, 2008). Carhart (1997) has performed a well established research and found that much of persistence in mutual fund performance is driven by expense ratios. According to Carhart (1997) only short-run mutual fund returns persist strongly, and most of the persistence is explained by common-factor sensitivities, expenses and transaction costs, leaving only 0.1% annual spread unexplained. Rompotis (2008) finds similar results, in that expenses negatively affect Greek mutual fund performance.

One can conclude that there is a strong negative relationship between expenses and fund performance, which seems to hold for pension funds and mutual funds, even though costs tend to be significantly lower for pension funds than for investment funds such as mutual funds (Bikker & de Dreu, 2006; Bauer, Cremers & Frehen, 2010). There is no research which proves that the preference structures of young Dutch people for pension funds are influenced by expenses. However, as there is a strong relationship between expenses and fund performance (Bikker & de Dreu, 2006; Bauer, Cremers & Frehen, 2010), we expect expenses to be an important attribute. Research shows that pension funds' administrative expenses are more important than advising costs, as administrative costs are directly transferred to the pension fund participants. Therefore we propose that the attribute "administrative expenses" plays a significant role in young people's preference structures for pension funds. As there is a strong negative relationship between expenses and a pension fund's financial performance, a rational person would prefer a pension fund with low expenses over a pension fund with medium or high expenses.

Monthly pension premium

A pension fund requires a pension premium (i.e. contribution) from its participants in order to invest and to pay out sufficient retirement benefits. Blake, Cairns and Dowd (2007) present simulation results for the likely pension outcomes for different DC pension plan members, comparing different contribution rates (i.e. monthly pension premiums). The authors find that a pension fund investing solely in equities on average requires a 21,5 percent contribution rate from its participants in order to provide an adequate pension on average. A pension fund investing only in T-bills requires a 23,21 percent contribution rate, while a pension fund which applies the "Pension Fund Average" (PFA) strategy only requires a 14 percent contribution rate. A PFA strategy is a static strategy with the following portfolio weights: 51 percent domestic (UK) equities, 5 percent UK T-bills, 15 percent UK bonds, 5 percent UK property, 20 percent international equities, and 4 percent international bonds (Blake, Caims & Dowd, 2007). The authors compare these results between occupations and genders, and conclude that contribution rates should be occupation- and gender-specific. Gözbaşı and Çıtak (2010) and Ramasamy and Yeung (2003) have researched the factors that matter to investors in evaluating mutual funds, and find that the contribution rate is generally very important to investors. Based on these findings, we expect that the attribute "monthly pension premium" also plays a significant role in young people's preference structures for pension funds. As it is unclear what the effects of low and high pension premiums are on the financial performance of a pension fund, we do not know whether a rational person would prefer a pension fund with a low monthly pension premium or a pension fund with a high monthly pension premium.

In the Netherlands, monthly pension premiums differ between pension funds. From January 1st 2011, the monthly pension premium set by the largest Dutch pension fund, ABP, amounts 21,4 percent (APG, 2010), while that of the second largest Dutch pension fund, PGGM, is 23,4 percent (PGGM, 2010).

Fund's total investment portfolio & Number of participants managed by the fund

The attributes "fund's total investment portfolio" and "number of participants managed by the fund" can both be viewed as measures which indicate the size of a pension fund (or other fund). Pension funds deserve some more attention with respect to their performance, related to their size, as the impact of scale on performance is significant (Chen, Hong, Huang & Kubik, 2004; Bauer, Cremers & Frehen, 2010). Some practitioners point out that there are advantages to scale, such as lower expense ratios – as we have seen in the previous paragraph –, more

resources for research and a strong internal knowledge base, a strong reputation by using a well-known brand name (Chen, Hong, Huang & Kubik, 2004; Bauer, Cremers & Frehen, 2010).

Others believe, however, that a large asset base erodes fund performance because of trading costs associated with liquidity or price impact (Perold & Salomon, 1991; Lowenstein, 1997; Chen, Hong, Huang & Kubik, 2004; Bauer, Cremers & Frehen, 2010). According to Chen, Hong, Huang and Kubik (2004) small funds are able to put all of its money in its best ideas, while large funds are forced to take larger positions per stock than optimal and invest in its not-so-good ideas because of a lack of liquidity. This erodes performance (Chen, Hong, Huang & Kubik, 2004). Bauer, Cremers and Frehen (2010) have provided a comprehensive overview of the performance and costs of domestic equity investments by US pension funds, both defined benefit and defined contribution pension funds. The authors find that the risk-adjusted net performance of total equity investments of the funds (after expenses and trading costs) tends to be positive and statistically significant. However, small cap and smaller sized funds tend to generate positive alpha (Bauer, Cremers & Frehen, 2010). Even though large pension funds incur significantly lower costs, fund size seems to erode risk-adjusted performance, which effect is most pronounced for investments that are prone to liquidity risk. "This explanation is consistent with large pension funds being unable to respond quickly to news or invest large parts of their portfolio in relatively illiquid stocks (Bauer, Cremers & Frehen, 2010). Bauer, Cremers and Frehen (2010) find that while larger scale brings costs advantages, these are apparently overshadowed by size disadvantages in equity performance, which mainly include liquidity limitations.

Using a small sample of funds from 1974 to 1984, Grinblatt and Titman (1989) find mixed evidence that fund returns decline as the fund size increases, and show that small mutual funds outperform large ones. Despite the fact that large funds might benefit from economies of scale, it is argued that small-scale funds may exhibit superior performance mainly because of their flexible structures and excellent communication (Haslem, 2003; Bauer, Cremers & Frehen, 2010). Needless to say, there is no consensus on this issue, which makes it interesting to research what young Dutch people's preferences indicate. We propose that at least one of the attributes "Fund's total investment portfolio" and "Number of participants managed by the fund" plays a significant role in young people's preference structures for pension funds. As there is no clear negative or positive relationship between the size of a pension fund and a pension fund's financial performance, we do not know whether a rational person would prefer a small or large pension fund.

Pension plan

Pension plans can be roughly divided into two types: Defined Benefit (DB) and Defined Contribution (DC) plans. Also, there are many plans which are a combination of both. DC plans are becoming more and more popular. DB is the most common pension plan type, which works as follows: each employee is promised a pension benefit that is typically a function of years of service and average or final salary (Benartzi & Thaler, 1995). The employer, not the employee, is the residual claimant for the pension. If the investments do not earn a return that is high enough to pay out sufficient benefits, the employer's contribution rate has to increase to satisfy sufficient retirement benefits. If the investments in the plan earn a sufficiently high return, the firm is able to make smaller contributions to the fund in future years. The risks which accompany this kind of pension scheme are therefore completely at the expense of the employer. For DC plans the employees or participants suffer all the risks. A DC plan provides a retirement benefit that is dependent on the amount of money contributed throughout the participants' working years (Lacomba & Lagos, 2009). The contribution rate is constant, and benefits are affected by several variables, such as the market performance, interest rates and the amount of pension participants (Lacomba & Lagos, 2009).

Van Rooij, Kool and Prast (2007) have presented evidence on the pension preferences of Dutch people. They have found evidence that Dutch employees prefer the status quo of a DB scheme with a limited say, at most, about the level of pension savings and risk-taking. This is, according to the authors, in line with the fact that employees (correctly) have strong doubts about their financial skills and report a high level of risk aversion in the pension domain. Van Rooij, Kool and Prast (2007) show that "pension plan" is important for Dutch people. In our research we will try to show whether this is also the case for young Dutch generation, and how the preferences for this attribute relate to the preferences for other pension fund attributes. Building on the results of van Rooij, Kool and Prast (2007), we expect the attribute "pension plan type" to play a significant role in young people's preference structures for pension funds. As there is no clear negative or positive relationship between a pension plan and a pension fund's financial performance, we do not know whether a rational person would prefer a DB, DC or mixed pension plan.

2.1.2 Non-financial attributes

Next to financial attributes, we expect non-financial attributes to play a role in determining the overall utility of young Dutch people for pension funds. Previous literature shows that non-financial attributes such as hedonic attributes are important to consider when analyzing

consumer choices (Hirschman & Holbrook, 1982; Babin, Darden & Griffin, 1994; Khan & Dhar, 2004; Chernev, 2004). Non-financial (i.e. hedonic attributes) are expected to make consumers feel good or to achieve an instrumental purpose, while financial (i.e. utilitarian) attributes serve functional needs (Khan & Dhar, 2004). By analyzing the preferences of young Dutch people for both financial and non-financial attributes of pension funds, we aim to find young Dutch people's preference structure for pension funds.

Socially Responsible Investing

Pension funds are well-known for holding significant equity positions in large publicly traded corporations. Realizing an optimal amount of financial gains has been the main objective of pension funds for many years. However, more recently pension funds have been expanding their investment strategy by considering a corporation's long-term risk on issues such as good corporate citizenship, sustainability and environmental protection, and how these non-financial factors impact a company's long-term performance (Sethi, 2005).

Socially Responsible Investing (SRI) has been the focus of academic research for several years now (Carrol, 1999; Seelos, 2004; Kolk, 2005; Niklas, 2005). However, these many years of intensive research have not resulted in one clear definition of SRI. Its practitioners tend to have different views on SRI and consequently use many different definitions to describe SRI. Gay and Klaassen (2005; p35) use the following definition of Socially Responsible Investing (SRI) in their paper: "Investing in companies that meet certain baseline standards of social and environmental responsibility; actively engaging those companies to become better, more responsible corporate citizens; and dedicating a portion of assets to community economic development". While Sethi (2005; 102) defines SRI as "Investing in companies that conduct their operations with an eye on causing the least amount of harm to the environment and sustainability of our habitat. They are conscious of their responsibility to various stakeholders from the unintended consequences of corporate actions".

When stated in economic terms, the companies who are socially responsible try to maximize positive external factors, while minimizing negative factors. As a direct consequence, these companies minimize future financial risks resulting from imprudent or unsafe business practices (Sethi, 2005), and are comparatively better and relatively safer long-term investment choices for institutional investors and other investors. However, as institutional investors have clearly other motives, responsibilities and obligations when investing, compared to other investors, their motives in investing socially responsible might

differ as well. Hong and Kacperczyk (2009) have researched who generally owns sin stocks (the opposite of socially responsible stocks), and found that sin stocks have significantly less institutional ownership, as compared to stocks of otherwise comparable characteristics. According to the researchers this is mainly caused by societal norms, to which institutions in particular are subject to.

Even though SRI has become a hot topic among researchers and investors, SRI research has limited itself to investigating the financial performance of SRI indices (Schröder, 2007; Collison, Cobb, Power & Stevenson, 2008) and the performance of SRI funds relative to non-SRI funds (Mallin, Saadourie & Briston, 1995; Derwall, Guenster, Bauer & Koedijk, 2005; Kreander, Gray, Power & Sinclair, 2005). There is a clear lack of research on investors' or (young) people's preferences for SRI. The work of Vyvyan, Ng and Brimble (2007) seeks to better understand the disparity between the positive attitudes towards SRI and the level of investments in SRI. They test this by surveying large Australian organizations and using conjoint analysis. As factors they use performance, star ratings and fees as "financial factors" and the factors "invests in" and "does not invest in" as SRI criteria. Such as for example; "companies must have good management" and "companies must not produce or sell weapons". The authors found that there are significant differences in investment attitudes with environmentalists placing more importance on SRI investment criteria. By this research we hope to complement, to some extent, to the work of Vyvyan, Ng and Brimble (2007) by researching in how far the attribute "SRI" is important for young Dutch people. We propose that the attribute "SRI" plays a significant role in young people's preference structures for pension funds. As the socially responsible investments of a pension fund directly relates to a pension fund's non-financial performance, a rational person would prefer a pension fund that invests socially responsible over a pension fund that does not.

2.2 Behavioral factors influencing people' preference structure

Behavioral finance is the study of how psychology affects finance. Psychology is the basis for human desires, motivations and goals, and it is also the basis for a wide variety of human errors caused by biases such as overconfidence, perceptual illusions and over-reliance on rules of thumb (Shefrin, 2002). These human errors and biases cut through the entire financial landscape, affecting many individual, private and institutional investors. Also the effect on retirement (plans) are significant. People tend to be emotional, rather than rational, causing them to make financial decisions that harm their own self-interest (Kooreman & Prast, 2010).

Shefrin (2002) suggests that anyone who plans successfully for his/her retirement, needs to recognize the necessity to accomplish a series of tasks, namely:

1. Identify financial needs during retirement

2. Save an appropriate amount over time

3. Select a portfolio of assets with a risk-return profile that is appropriate for reaching their retirement goal.

4. Have procedures in place to prevent those assets from being consumed too early (Shefrin, 2002).

Once these tasks are sufficiently applied, retirement goals will be reached and he or she can start enjoying his/her retirement. But there are several behavioral factors that have an impact, and make this "worry-free retirement" a difficult goal to reach.

In this research we focus on four behavioral factors, namely myopia, risk aversion, overconfidence and self-control. Myopia causes people to be "shortsighted" as insufficient attention is given to retirement or pension plans. Also many people tend to be risk averse. People who are risk averse have a low risk-tolerance and therefore tend to prefer low-risk options over risky options. This could have a significant effect on retirement choices, and might lead people to be too conservative in their investment decisions. A lack of self-control causes people to set aside insufficient savings for their retirement (Shefrin, 2007). Overconfidence could also play a role: Many people seem to be too confident about having sufficient resources available for their retirement, even though they might not have clear retirement plans. There are also people who claim to be a better investor than pension funds, and therefore they prefer to invest for their own pensions. Eventually all these behavioral biases could lead to severe problems in the form of insufficient retirement income (Shefrin, 2002). In the next paragraphs we review the behavioral factors we expect to influence the pension preferences of young people.

Myopia

Myopia or shortsightedness is often offered as a rationale for public pensions. There seems to be a widespread belief that, left to their own devices, a sizeable fraction of households would inadequately save and insure (Anderson & Bhattacharya, 2008; Shefrin, 2002). Presumably, this is caused by insufficient foresight or myopia. Myopia is a well-studied phenomenon: much research has been performed to test myopia and its implications. According to Shefrin (2002) there are at least two different ways that myopia can plague people saving for retirement. First, these investors pay insufficient attention to their retirement because it seems

so far off. Often, too much attention is given to most recent events, at the expense of the "long-term" picture. The second way involves attitudes investors have towards facing risk. Many investors tend to choose too conservative portfolios for the goals they aspire, which is closely related to risk aversion (Shefrin, 2002). This happens because these investors focus too much on the potential for short-term losses; they suffer from myopic loss aversion.

Myopic loss aversion causes investors to hold too little in equities and too much in fixed-income securities (Shefrin, 2002). The term is based on two main concepts; loss aversion and mental accounting. In short, loss aversion proposes that individuals weight losses roughly 2½ times as high than equivalent gains (Kahneman & Tversky, 1979), and mental accounting refers to the manner in which individuals cognitively frame decision problems (Thaler, 1985). According to Benartzi and Thaler (2005), myopic loss aversion is an obvious reason why many investors choose to hold bonds, even though stocks tend to outperform bonds by significant amounts. Based on the influence that myopia has on retirement decisions (Shefrin, 2002), we expect that myopia influences young people's preference structures for pension funds.

Self-control

Self-control means controlling emotions. In behavioral terms self-control is explained as an act of controlling one's impulses, usually to delay gratification or pleasure (Shefrin, 2007). To assure an income stream, investors with high self-control levels often prefer dividend-paying investments. Many people lack the self-control necessary to set aside adequate financial resources for their retirement. The needs of the present are felt through emotions, while the needs of the future express themselves more through thought. Present needs generally have a much stronger voice than future needs. Therefore most people feel the urge to satisfy their immediate needs, and delay future needs (Shefrin, 2002). A lack of self-control is often linked to a lack of willpower, which makes people suffering from this bias likely victims of depleting pension wealth.

Thaler and Shefrin (1981) have developed a model which tries to explain (differences in) self-control. They have come up with a framework which models people as having two sets of preferences that are in conflict at a single point in time. The researchers found that self-control can be reached by altering incentives or opportunities, such as to live by certain rules. These rules could be a ban on borrowing, except for specific purchases, like houses and automobiles (Thaler & Shefrin, 1981). It is not clear how self-control would affect pension fund preferences of young Dutch people. By this research we try to explain this relationship.

Risk aversion

Risk aversion is explained as staying away from risky trading practices or choices, even if those may have high chances of profits or returns (Shefrin, 2002). By simple explanation, risk aversion is the inverse of risk tolerance. Risk and uncertainty play a role in almost every economic decision. As a consequence, a growing literature has made progress on developing empirical measures of risk aversion. Risk aversion is a fundamental element in various standard theories, such as asset valuation, lottery choice, insurance and contracts (Bernoulli, 1738; Pratt, 1964; Arrow, 1965). But also individual risk preferences have been well-researched (see e.g. Bruhin et al., 2007; Dohmen et al., 2009) Also various researchers have researched the impact of risk aversion on retirement decisions and pensions in general. Benartzi & Thaler (1995), Holt and Laury (2002) and Shefrin, (2002) have researched the affect of risk aversion on repeated decisions with respect to retirement decisions. They have conducted experiments about repeated investment decisions over time. In the context of retirement saving decisions, people were presented with a realistic decision: how to invest in a Defined Contribution pension plan. The researchers found that subjects who looked at explicit multi-year distributions were willing to accept more risks than subjects who looked at single-year distributions. Risk tolerance tends to increase as the number of repetitions of the gamble goes up. Benartzi and Thaler (1995) suggest that people respond to the preceding questions as they do because of myopic risk aversion – or myopic loss aversion. "People evaluate one-shot gambles in isolation from other decision problems and record the possible outcomes for each of these gambles in a spate mental account. But playing the smaller stakes gamble multiple times offers a form of time diversification, where people feel that the law of averages is on their side" (Shefrin, 2002).

Risk aversion – possibly through myopic risk aversion - is expected to have a significant impact on decision-makers preferences for pension funds. Recently there has been a shift from DB to DC pension schemes which make use of individual investment fund management. This shift implies that individual pension participants are making more investment decisions by considering a range of investment strategies, selecting portfolios suited to their time horizon and risk tolerance (Hinz, McCarthy & Turner, 1997). This shift toward individual management may, however, have adverse effects. Individuals may be too conservative in allocating a share of their portfolio to short-term, fixed-income assets, inconsistent with specialists' views as the optimal mix for a pension portfolio (Hinz, McCarthy & Turner, 1997). Risk aversion plays a significant role here. According to Benartzi and Thaler (1995) many investors tend to hold overly conservative portfolios because they

over focus on the potential for short-term losses. Myopic risk aversion leads investors to hold too little in equities and too much in fixed-income securities.

According to a survey of Hinz, McCarthy and Turner (1997), 69 percent of working Americans would prefer low-risk, low-return investments, which are probably too low in order to gain sufficient returns for a decent retirement income. One could conclude that generally risk aversion provokes low tolerance levels for risk, and therefore might cause people to invest too conservative and to be too much focused on current returns rather than future (uncertain) returns. Bad investment decisions and a lack of retirement income due to too conservative investments could be a direct consequence of risk aversion. In our research we try to find evidence for the relationship between risk aversion and pension fund preferences of young Dutch people.

Overconfidence

Overconfidence is a bias which causes someone's subjective confidence in their judgments to be reliably greater than their objective accuracy. When people are overconfident, they set overly narrow confidence bands. They get surprised more often than they had expected, because they set their low guesses too high and their high guesses too low (Shefrin, 2002). Overconfidence often leads people to underestimate risks, overestimate their knowledge and exaggerate their ability to control events. Consequently, investors tend to take bad bets because they fail to realize the (too) high risks involved or that they are at an informational disadvantage (Shefrin, 2002). Overconfident investors trade more frequent than is optimal, which leads to excessive trading volume and therefore low returns. This statement is supported by Barber and Odean (2000) which have researched the common stock investment performance of individual investors. The researchers found empirical evidence to support the view that overconfidence leads to excessive trading. They show that when turnover increases, net returns tend to decrease. The researchers found that households that trade frequently earn a net annualized geometric mean return of 11,4 percent, while those that trade infrequently earn 18,5 percent (Barber & Odean, 2000).

Overconfidence builds on the better-than-average effect. When individuals assess their relative skill, they view themselves as above average in ability than below average (Svenson, 1981; Alicke, 1985; Shefrin, 2007). Svenson (1981) found that a majority of people regard themselves as a more skillful and less risky (automobile-) driver than the average driver in each group respectively (Svenson, 1981). Alicke (1985) examined self-evaluations by comparing college students, and found strong evidence that self ratings in relation to average

college student ratings are increasingly positive as traits increase in desirability. Alicke (1985) also found that in conditions of high desirability, self ratings in relation to average college student ratings are greater for high controllable traits than for low controllable traits, whereas in conditions of low desirability the opposite occurs. These results provide evidence for the better-than-average effect. Dorn and Sengmueller (2009) have researched the reasons why people trade and proof that entertainment is one of the reasons for trading. They also proof that overconfidence has an effect on trading. According to Dorn and Sengmueller (2009) there are three different attributes that capture different aspects of overconfidence: the tendency to overly attribute successes to skill in conjunction with past returns (known as the self-enhancing attribution bias), the erroneous expectation to be able to affect chance outcomes (known as the illusion of control, and the tendency to overestimate one's knowledge; see also Daniel et al. (1998) and Barber and Odean (2002).

All this knowledge may also be viewed in the light of young decision-makers preferences for pension funds, as decision-makers might be overconfident in making the right choices for their retirement. This effect is even more likely when individuals are able to invest their own money for their retirement, and could lead to a serious depletion of retirement wealth (Barber & Odean, 2000; Shefrin, 2002). Therefore, we expect that overconfidence influences young people's preference structures for pension funds.

2.3 Observations

Based on past literature, we have identified ten attributes which may influence young Dutch people's preferences for pension funds. These attributes are either financial or non-financial and each have two or three levels. Through focus group meetings and in-depth interviews with experts, described in later chapters, we will select the attributes that are suitable for further analysis. Also, we have identified the expected preferences of a rational person for the attribute levels. Through further analysis we hope to find whether young Dutch people's preferences for pension funds are rational.

People suffer from various behavioral biases, which might influence their preferences for pension funds. Based on past literature, we can conclude that there are four behavioral biases which may influence young Dutch people's preferences for pension funds: self-control, myopia, risk aversion and overconfidence. These behavioral biases could therefore relate to the problem of insufficient retirement benefits. Focus group meetings, in-depth interviews and a conjoint analysis through a survey might reveal the relationship between behavioral biases and the pension fund preferences of young Dutch people.

Chapter 3: Decision context

To enrich our understanding of the market environment that the young Dutch people are dealing with, this chapter briefly discusses the Dutch pension market. First, the Dutch pension fund system is explained, after which the pension plans in the Netherlands are discussed. Next the largest Dutch pension funds are provided and shortly discussed, while focusing on the largest public pension provider of the Netherlands; APG. Finally, recent issues and developments in the pension market will be shortly reviewed.

3.1 The Dutch pension system

Financial markets are well developed in The Netherlands compared to other EU-countries such as Italy and Germany, and the channels by which the common household can learn about all the existing investment and saving possibilities are quite extensive (Lusardi, 2008). The composition and size of Dutch households' financial assets are on average a lot higher than for other countries, which is partly caused by the national features of the compulsory tax and pension systems. However Dutch households' portfolios on average have low diversification and low risk, which is similar to other countries (Guiso, Haliassos & Jappelli, 2002).

The pension system in the Netherlands is also well developed and unique compared to EU-countries such as Italy and Germany, offering a strong base that ensures virtually all seniors to live above social assistance level. Dutch citizens enjoy comparatively high levels of pension income on retirement (Guiso, Haliassos & Jappelli, 2002). This outcome is the result of a pension system comprised of three pillars (table 2).

Table 2. The three pillars of the Dutch pension system

	1st pillar **Public old age pension**	2nd pillar **Sector or company occupational pension**	3rd pillar **Individual pension**
Principle	Universal	Occupational	Personal
Coverage	Compulsory for all residents	Compulsory for employees in participating sectors	Voluntary
Financing mechanism	Pay-as-you-go	Funding	Funding
Contributions	Employment-related	Employment-related	
Benefits	Flat-rate, dependent on household status	Contributions-related	
Objective	Poverty prevention	Income maintenance	Complementary individual needs

Source: Meyer, Bridgen & Riedmüller (2007, Table 3.1)

The first pillar is a public, collective, obligatory pillar based on residency (Meyer, Bridgen & Riedmüller, 2007). This pillar is available to all Dutch seniors, and reaches the poverty level by being indexed to the net minimum wage. This means that citizens without supplementary pensions, while not poor, are still far away from being well off in retirement (Meyer, Bridgen & Riedmüller, 2007). The second pillar is a private, collective, obligatory pillar based on work history. In this pillar unions, employers' organizations and the state play a decisive role. In principle, the social partners of each sector are free to choose whether they want to make pension arrangements. However once the first employer in a sector enters an agreement, all workers and employers in this sector are legally obliged to participate in the system as well (Meyer, Bridgen & Riedmüller, 2007). This framework causes coverage to be very extensive. Generally, only the self-employed do not participate in the second pillar pension scheme. About 80 percent of the pension funds apply a minimum entrance age for the second pillar participants, often 21 or 25 (Meyer, Bridgen & Riedmüller, 2007). The third pillar is an additional private, individual and voluntary pillar. This pillar contains individual savings plans, bought on the private insurance market. Taxpayers who can proof that they are confronted with a pension gap are able to make tax-deductible contributions to a third pillar pension (Meyer, Bridgen & Riedmüller, 2007).

3.2 Pension plans in the Netherlands

In the Netherlands various Defined Benefit (DB) schemes exist, which are compulsory. Noncompulsory defined benefit schemes are very common in many countries, but hardly exist in the Netherlands (Guiso, Haliassos & Jappelli, 2002). The final earning scheme and the average earnings scheme are the best known schemes. Both are based on a Defined Benefit agreement. (DNB, 2007a). The following Defined Benefit schemes exist in the Netherlands:

- Final earnings scheme: the pension for the entire period of service is based on the salary earned just before retirement.
- Modified final earnings scheme: a variation of the final earnings scheme; a computation formula is used. This way a salary rise only has a limited effect on the total amount of pension.
- Average earnings scheme: the pension is based on the average salary throughout the entire period of pensionable service.

-   Indexed average earnings scheme: a variation of the average earnings scheme; every year the pension amount is adjusted for inflation by indexation based on price or salary rises (DNB, 2007a).

Until recently, in the Netherlands 70 percent of the final earnings was generally accepted as sufficient retirement benefits. This standard has been modified. As the average earnings scheme is now used most by Dutch pension providers, retirement benefits based on career-average earnings are considered sufficient (DNB, 2007a).

In the Netherlands, Defined Contribution pensions are less commonly held than in many other countries; about 16 percent of the Dutch pension savers hold this kind of pension scheme (Guiso, Haliassos & Jappelli, 2002). Next to Defined Benefit plans, life insurance assets have consistently higher ownership rates that Defined Contribution plans. These life insurance assets also includes a life insurance linked to a mortgage (Guiso, Haliassos & Jappelli, 2002). This might easily change again in the future though, as new developments in the pension market are constantly taking place.

3.3 Recent issues and developments

Although the Dutch pension system is well developed, like each system it has risks. Incomplete residency and insufficient or no access to second pillar schemes, due to self-employment, unemployment or informal work, are risk factors for insufficient pension coverage. Moreover, the public pension level in the Netherlands lags behind average wage rises (Meyer, Bridgen & Riedmüller, 2007), and coverage ratios have been historically low. The target set by the Dutch government, a coverage ratio of 105 percent, is not always reached by all Dutch pension funds. Especially when financial markets are performing bad, coverage ratios are affected (Lusardi, 2008). This tendency is also observed by DNB (2010), which provides projected coverage ratios over the years: The average coverage ratio of Dutch pension funds has dropped significantly during 2008 from 144 to 95 percent. During 2009 the rate has recovered a bit from 92 to 109 percent, after which it declined again to 99 percent in the 3rd quarter of 2010. While in 2007 there were 263 (out of the 409 pension funds measured) pension funds which had a coverage ratio above 130 percent and only 2 pension funds which had a coverage ratio below 105 percent, in the last quarter of 2010 only 17 pension funds had a coverage ratio above 130 percent and 245 had a coverage ratio below 105 percent.

Next to the low coverage ratios, the ageing population in many industrial countries, the fall in stock market returns during the recent crisis and the current low bond yields caused the current system to be heavily debated by policy makers (Bikker & de Dreu, 2006).

According to Meyer, Bridgen and Riedmüller (2007), at least three general tendencies can be observed: (1) an increased emphasis on lifelong labor market participation signaled by the current discouragement of pre-pension arrangements; (2) individualization and privatization of the system; and (3) implicit privatization of the public pension by incomplete indexation and pressure to increase the pensionable age.

These tendencies are related to the recent changes in pension plans. Due to competitive forces, combined with escalating and unpredictable expenses, firms are being pressured into abandoning traditional retirement benefits packages (Looney & Hardin, 2009). Over the past several years, a clear shift away from employer-managed Defined Benefit plans toward employee-managed (collective) Defined Contribution (DC) plans has taken place (Looney & Hardin, 2009). Responsibilities and risks are shifting from employers to employees. An obvious benefit for the company of this type of pension scheme is the fixed amount per employee the employer contributes to the pension fund. Employees must take a more active role in managing their retirement assets. This approach clearly empowers future retirees, however the final retirement benefits depend on the performance of the investments they choose. This structure places high demands on decision-making skills and education levels (Looney & Hardin, 2009).

3.4 Dutch pension funds

There are approximately 720 registered pension funds in the Netherlands (DNB, 2007b). These pension funds can be subdivided into three categories: industry pension funds, vocational pension funds and enterprise pension funds. Industry pension funds provide pension for people who work in a certain industry sector. Combined, their investment portfolio is larger than 500 billion Euro (VVB, 2007). In the Netherlands 4 of the 5 largest pension funds are industry pension funds. Table 3 shows the five largest pension funds, the industry sector they represent and their estimated investment portfolio. The majority of funds in the Netherlands are enterprise pension funds, with a combined investment portfolio of more than 150 billion Euro (OPF, 2009). These funds provide the employees of a company or organization with a pension plan.

Vocational pension funds provide retirement benefits for people with certain professions. Only 2 percent of all pension funds are vocational pension funds. These funds have a combined investment portfolio of approximately 20 billion Euro (UvB, 2010).

Table 3. The five largest pension funds in the Netherlands.

Fund name	Industry sector	Investment portfolio
APG	Government & education & construction & cleaning & housing corporations & energy and utility	€240 billion
PGGM	Healthcare	€90 billion
PMT	Metal working & related technical sectors	€31 billion
BPF Bouw	Construction industry	€23 billion
Shell	Employees of Shell	€10 billion

Synthesis of various sources: DNB (2007b), PMT (2010), APG (2010), Shell pensioenfonds (2010), BPF bouw (2010), PGGM (2010).

APG

APG (All Pensions Group) is pension delivery organization, that administrates over 30 percent of all collective pension schemes in the Netherlands. APG is organized as a not for-profit cooperative. This legal structure is consistent with the solidarity principle that underlies the Dutch pension system and which continues to serve it well today (Munsters, 2008). APG invests worldwide in order to provide asset management services for the pension funds for which APG works. Based on the pension fund's liabilities, APG develops investment strategies for 3-year periods. These strategies are determined annually and assessed in a new investment plan (APG, 2010).

APG's vision is expressed in a number of investment principles. Together these principles form the basis from which APG works to achieve their goals: 1) Diversification ensures stability, 2) A long-term investment horizon is an advantage, 3) Active investment strategies result in above-average performance, 4) Innovation pays off, 5) Socially responsible investing, and 6) Investment risks are rewarded (APG, 2010). Next to realizing financial gains, APG also assesses investments based on criteria such as the environment or social issues: APG invests socially responsible. APG bases its Socially Responsibility Investing (SRI) on 7 pillars, namely: 1) SRI is an integral part of the investment process of APG, 2) APG dialogues with companies to realize sustainability and good corporate governance, 3) APG expects from companies that they operate with respect for the missions of the VN Global Compact, and APG does not invest in products which are prohibited according to the Dutch law of international regulations, 4) APG actively uses its rights as shareholder, 5) APG opts nationally and internationally for trustworthy rules and regulations to restrict sustainability and good corporate governance, 6) APG is actively searching for attractive investments which improve sustainability, 7) APG actively executes its SRI policy to promote sustainability and corporate governance (APG Verslag Verantwoord Beleggen, 2009).

Chapter 4: Methodology & model

This research attempts to examine young people's preference structures for pension funds, and how these preferences may be different caused by demographic and behavioral factors. In the management and organizational sciences literature the use of methodologies are emerging to study empirically the utility that individual decision makers derive from the attributes of a product or service (Schoemaker, 1982; 1993; Little, 1986; Kalogeras, 2011). Following closely Kalogeras (2011), we use a behavioral methodology in this study to examine the utility that individual young Dutch people (i.e. (future) pension consumers) derive from the attributes of a pension fund. The assessment of this utility demands the consideration of subjective values (Keeney & Raiffa, 1972; 1993). This methodological approach measures and analyses multi-attribute preferences, and considers how these preferences are dependent on young Dutch people's overall utility to different combinations of all the attributes (Kalogeras, 2011). Statistical models are then applied to estimate the contribution of the attributes (and their levels) to the overall utility that young people derive from a particular pension fund profile.

In figure 1 our conceptual model is displayed, which shows the relationships which are researched in this thesis. The preferences for financial versus non-financial pension fund attributes are researched thoroughly, which together explain the preference structure for pension funds (displayed by the solid arrows in figure 1). We expect these financial and non-financial attributes of pension funds to add positively to the overall utility-levels of young Dutch people. We will also, to some extent, show the influence of demographic and behavioral factors on this preference structure (based on utility values). These relationships are displayed in figure 1 as dotted arrows. The directions of these relationships will be identified through research.

Figure 1. Relationships examined in this thesis
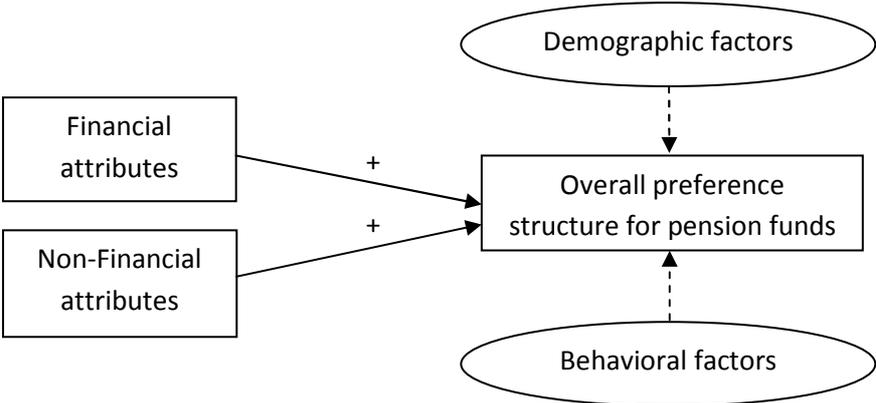
4.1 Conjoint analysis

This study uses conjoint analysis with a view to investigate the pension fund preferences of young Dutch people. Conjoint analysis has various areas of use such as transport services, industrial products and financial services marketing. Related to financial decision making, Hooper (2001) uses conjoint analysis to determine the importance of factors that affect international capital budgeting decisions by multinational corporations. Kalogeras et al. (2009) and Kalogeras (2011) use conjoint analysis to measure and understand the preferences of cooperative member-investors. Conjoint analysis determines "the relative importance people attach to salient attributes and the utilities they attach to the levels of attributes. The respondents are presented with stimuli that consist of combinations of attribute levels. They are asked to evaluate these stimuli in terms of their desirability." (Malhotra, 2007; pp 684). For this research a full-profile conjoint analysis is used, in which full or complete profiles are constructed for all the attributes. Full profiles are constructed as combinations of levels of all attributes (one per attribute). They are bundles of attributes that make up the product, service or, in the context of this study, the pension fund. An assessed combination may also consist of various attribute-levels considered when buying a financial product (Moskowitz & Krieger, 2001). This method results in a set of part-worths (i.e. values) for individual attributes that are most consistent with the subject's overall preferences (Green & Srinivasan, 1978). We have chosen for this approach as a realistic description is achieved by defining a stimulus in terms of a level for each factor, and it leads to an explicit portrayal of the trade-offs among all factors (Hair et al., 2006). The subjects are faced with a decision similar to a real-life decision (Ross et al., 2003).

Conjoint analysis assumes that decision-makers derive utility from the attributes of a service or product (Green & Srinivasan, 1990). *In this research we assume that the levels of the financial and non-financial pension fund attributes each contribute additively to the young people's overall utility*, as given in Equation 1, following closely Kalogeras (2011):

$$\gamma_{jk} = \sum_{p=1}^{p} \sum_{l=1}^{L_p} \chi_{jklp} \beta_{jlp} + e_{jk}$$

where γ_{jk} is the preference of young person j ($j = 1, \dots, J$) for profile k ($k = 1, \dots, K$) which represents a hypothetical pension fund profile; p ($p = 1, \dots, P$) is an index for pension fund attributes, with P being the total number of attributes; l ($l = 1, \dots, L_p$) is an index for attribute levels with L_p being the number of levels defined for attribute p; χ_{jklp} is a dummy variable that takes a value of 1 when level l of attribute p holds in profile k for j and $\chi_{jklp} = 0$

otherwise; β_{jlp} is the utility that the young Dutch person j attaches to level l of attribute p, and e_{jk} is a normal error term with variance σ^2. Based on the structure of preferences (γ_{jk}), which is often defined in terms of a specific scale or metric and the value of the dummy variables (χ_{jklp}), the utility weights (β_{jlp}) can be estimated for each young Dutch person. Based on Kalogeras (2011), we assume that the young Dutch people add-up the values (part-worths) for each attribute to assess the total value (sum of parth-worths) for a combination of attributes that describes a pension fund profile.

Chapter 5: Research design

This research was conducted from March 2010 until May 2011, using both qualitative and quantitative research techniques. Qualitative research in the form of focus groups and individual depth interviews is used to reveal what attributes are important for young Dutch people. Such opinions cannot be uncovered by quantitative research" (Malhotra, 2007). Two focus-group discussions were held with young people – students – in September 2010. The results of these discussions were used, together with the results of ten in-depth interviews with experts, as input for the design of the conjoint data collection instrument. Below we present in detail the development of our data-gathering instruments.

5.1 Identification of attributes: A focus-group Study

In order to identify the attributes of pension funds which are important for young people's pension fund preferences, we have conducted two focus-group discussions. A focus group is described as an interview with a small group or respondents, conducted in a natural and non-structured manner. An experienced moderator leads the discussion, while trying to gain insights about a certain subject by listening to a group of people from the target market, which talk about issues which are of interest to the researcher. A focus-group discussion is a valuable technique as often unexpected findings are obtained from a spontaneous group discussion (Malhotra, 2007). We asked participants to discuss financial and non-financial pension fund attributes, which were presented to them through power-point slides. These attributes were selected based on the literature review presented in chapter 2 of this thesis. The two meetings took two hours each, with 8 and 10 people participating in each group. The groups consisted of students, younger than 30 years of age. The participants were carefully screened to meet our criteria. Also present were 2 to 3 observers from APG and Maastricht University, a moderator, an assistant and one person taping the discussion on video. During the meetings we have experienced a relaxed and informal atmosphere, which encouraged spontaneous comments. The meetings were videotaped as it has the advantage of recording facial expressions and body movements. The tapes have been used for subsequent replay, transcription and analysis, which resulted in the output represented next.

Based on the findings from our literature review and the focus group meetings, we have identified 7 attributes which we expect to influence young Dutch people's preferences for pension funds. These 7 attributes and attribute levels are stated in table 4. The focus group outcomes for all financial and non-financial pension fund attributes are explained in the following paragraphs.

Table 4: Financial and non-financial attributes for pension funds

Attributes	Attribute levels (alternatives)
Financial	
Monthly pension premium	1. 18%
	2. 21%
	3. 24%
Past investment performance (last 25 years)	1. 4 %
	2. 7 %
	3. 10 %
Coverage ratio	1. 90 %
	2. 105 %
	3. 120 %
Fund's total investment portfolio	1. < 10 Billion €
	2. 10-50 Billion €
	3. > 50 Billion €
Administrative expenses (in % of total pension fund assets)	1. 0.1 %
	2. 0.6 %
	3. 1.2 %
Pension plan	1. DB
	2. DC
	3. Mixed
Non-financial	
Socially Responsible Investments	1. Yes
	2. No

Synthesis of 2 qualitative sources: literature review and focus group discussions

5.1.1 Financial attributes

Monthly pension premium

During the focus group meetings the participants were introduced to several financial pension fund attributes. The first attribute introduced was "monthly pension premium" which is very important to the participants. Overall it appeared that the participants like to have a choice in how much they contribute and at what point in time they contribute. Most participants agree that the attribute levels 18%, 21% and 24% are realistic, but not ideal. On average the participants want to pay 8 to 10 percent of their monthly income for their pension plan, and they prefer a variable rate which can be adjusted when their (family) situation changes.

Current investment performance & Past investment performance

The second attribute "current investment performance" is important to the participants as well, however most participants agreed that the third attribute "past investment performance", is more important. The participants expect a minimum of 3-5 percent investment returns, preferably over a long period of time, representing an upward trend. Some participants

indicated that the attribute levels 4%, 7% and 10% were higher than they expected. Some participants would not invest in a poor performing pension fund, if they had the choice. A steady growth seems to be more important to the participants than high (short-term) fluctuations.

Coverage ratio

The fourth financial attribute "coverage ratio" is very important to the participants, although not all participants were familiar with this attribute. The participants overall shared the opinion that the coverage ratio of a pension fund indicates the financial health of the fund, and therefore is an important attribute. All participants prefer a pension fund with a high coverage ratio over a pension fund with a low coverage ratio. According to the participants, a high coverage ratio is a coverage ratio higher than 120 percent, while a low coverage ratio is a coverage ratio below 90 percent. Therefore, the participants confirm the attribute levels 90%, 105% and 120%.

Fund's total investment portfolio & Number of participants managed by the fund"

The fifth financial attribute introduced was a "fund's total investment portfolio". Most participants share the opinion that size matters: the bigger the better. Economies of scope and scale play a role here, and a big pension fund has a big buffer left when something goes wrong, according to the participants. But the participants do acknowledge that the choice for a small or big pension fund is influenced by risk aversion: they expect that a risk averse person is more likely to choose a large fund than a small fund. The participants consider the attribute "fund's total investment portfolio" to be more important than the sixth financial attribute: "number of participants managed by the fund", although both attributes are size measures and therefore, according to the participants, measure the same thing. Many of the participants stated that they did not have any idea about how large the fund's total investment portfolio generally is. The participants agreed with the attribute levels < 10 Billion Euros, 10-50 Billion Euros and > 50 Billion Euros.

Advising costs & Administrative expenses

As a seventh financial attribute the participants were introduced to "advising costs". Most participants agreed that this is not a very important attribute in the current Dutch pension-system, as you hardly have any options or choices. Only when a person would have more freedom of choice in for example investment decisions, advice would be needed. A good

(regular) information session about what the pension is doing with the contributions is enough, according to most participants. Online advice is also valuable, according to the participants, for example by means of live chat. The participants overall agree that "advising costs" is not an important attribute, although other costs such as "administrative expenses" are very important as these have a direct effect on the final returns and pension payments. The participants agree that the eighth attribute "administrative expenses" is an important pension fund attribute. Again, most participants did not know the size of pension funds' administrative expenses, and they agreed with the attribute levels we selected from the literature: 0,1%, 0,6% and 1,2%.

Pension plan

The ninth financial attribute which was introduced is "pension plan". Two different pension plans – Defined Benefit and Defined Contribution – were explained to the participants. Most participants indicated that they would choose a DC scheme over a DB scheme if they would have the choice. But these participants also said that they would want to transfer from a DC scheme to a DB scheme when their age increases or their personal situation changes. The participants agreed that people, to some extent, should have the freedom to make investment decisions. Overall "pension plan" is considered by the participants as an important attribute, and they agreed that the attribute levels DB, DC and Mixed are representative.

5.1.2 Non-financial attributes
Socially Responsible Investments

Next to the financial attributes, one non-financial attribute was introduced to the participants: "Socially Responsible Investments (SRI)". Participants were divided on the importance of this attribute. Some participants clearly stated that they do not care about pension funds investing socially responsible, others do care to some extent but would like to have a say in whether or not a pension fund is investing socially responsible, and to what extent. Several participants stated that they only want the pension fund to invest socially responsible when this leads to higher returns. The participants agreed that when the attribute is included in the analysis a clear distinction should be made between this non-financial attribute and the financial attributes discussed before. The attribute levels yes and no were approved by the participants.

5.1.3 Behavioral factors

In order to find out which behavioral biases the participants "suffer" from, we introduced several behavioral biases to the participants, such as myopia, overconfidence, self-control and

risk aversion, and asked the participants in how far they suffer from these psychological biases. Most participants agree that they are myopic, especially with respect to their pension, as generally pensions are considered as "something which lies in the future". Some participants indicate that they would like to spend their money now and have fun, since in the future they will earn enough money to save for sufficient retirement benefits. This shows some signs of self-control and overconfidence issues. Several participants indicate that they prefer some risk taking in general, but do not like to take very high risks with their pensions. Various participants indicate that they do not expect to suffer in large extents from behavioral biases. Overall we can conclude that the participants are quite unaware of most of the behavioral biases they might suffer from.

5.2 Identification of attributes: in-depth interviews

Depth interviews are, like focus groups, a direct way of obtaining information, but unlike focus groups, depth interviews are conducted on a one-on-one basis. A depth interview is a direct, unstructured and personal interview in which a skilled interviewer tries to uncover underlying beliefs, motivations, feelings and attitudes from a single respondent on a certain topic (Malhotra, 2007).

A total of 10 depth interviews have been conducted with academic experts on pensions in order to find out what pension fund attributes in their opinion would be most important for young people, and to verify which of these attributes to include in the conjoint analysis, as part of the questionnaire. According to Malhotra (2007) in addition to focus groups, interviews with industry experts, individuals knowledgeable about the firm and the industry may help structure the final questionnaire. The interviews have been conducted with experts both from inside APG and outside APG, both from Maastricht University and from other universities. These interviews were relatively unstructured interviews, without administering a formal questionnaire, in order to allow greater flexibility in capturing the insights of the experts (Malhotra, 2007). Though, a list of topics was prepared before the interviews, in order to be certain that all information required was obtained. The purpose of these interviews was to help develop the final questionnaire through defining inputs in the conjoint analysis rather than to develop a conclusive solution to the problem statement.

Also, we introduced a range of financial and non-financial pension fund attributes to the experts and asked their opinion about the attributes' importance for (young) people about pension funds. These attributes were selected based on the literature review presented in chapter 2 of this thesis. In the following paragraphs we discuss the experts' opinions about

these attributes. Also, based on the in-depth interviews, focus group findings and the literature review we explain which attributes we have selected for the final analysis. We identified five attributes – four financial attributes with three levels (i.e. alternatives) and one non-financial attribute with two levels – as important attributes of pension funds which we expect to influence young Dutch people's preferences for pension funds (see table 5).

Table 5: Financial and non-financial attributes for pension funds

Attributes	Attribute levels (alternatives)
Financial	
Past investment performance (last 25 years)	1. 4 %
	2. 7 %
	3. 10 %
Coverage ratio	1. 90 %
	2. 105 %
	3. 120 %
Administrative expenses (in % of total pension fund assets)	1. 0.3 %
	2. 0.9 %
	3. 1.5 %
Fund's total investment portfolio	1. <500 Million €
	2. 500 Million – 10 Billion €
	3. >10 Billion €
Non-financial	
Socially Responsible Investments	1. Yes
	2. No

Synthesis of 3 qualitative sources: literature review, focus group discussions and in-depth interviews

5.2.1 Financial attributes

Monthly pension premium

The experts agree that the first financial attribute "monthly pension premium" is important, as they expect this attribute to influence young people's pension fund preferences. However, most experts indicate that this attribute should be excluded from the conjoint analysis because pension premiums are often linked to the degree of risk-taking and final benefits provided by a pension fund. Also, pension premiums are often individual and not linked to a pension fund (strategy), which makes it unfair and unrealistic to link a monthly pension premium to a pension fund profile. Therefore, the experts suggest, this attribute should be tested through a separate question, rather than as part of the conjoint analysis.

We acknowledge the importance of the attribute "monthly pension premium", proven by the literature review, focus group participants' and experts' opinions. Literature (Gözbaşı and Çıtak, 2010; Ramasamy and Yeung, 2003) reveals the importance of this attribute for regular investors, which suggests this might also be the case for young Dutch people which

evaluate a pension fund. All focus group participants agree that the monthly pension premium of a pension fund is important, and the experts agree. However, we have decided not to include the attribute "monthly pension premium" in the conjoint analysis. The main reason for this is the fact that the pension premium of a pension fund should be linked to the outcomes of the pension fund, such as the amount of retirement benefits. It is simply too complex to consider these factors in the conjoint analysis. Therefore we created a separate question in our questionnaire which deals with this attribute. The results of this question could be analyzed in future research.

Past investment performance & Current investment performance

Most experts expect that the second financial attribute "past investment performance" is important to young Dutch people and share the opinion that past performance shows a long-term trend, which is optimal compared to the third financial attribute: "current (short-term) performance". Some experts expect that young people in general are not that interested in investment returns, both current and past. According to them only people that are interested in pension funds in general will look at current or past investment returns. One expert expects past performance to be important to young Dutch people but thinks the fund's coverage ratio will be much more important. Consistent with the literature (Tapia, 2008; Srinivas, Whitehouse & Yermo, 2000), the experts agree that the following three levels show a realistic picture about a pension fund's past investment performance: 4%, 7% and 10%. According to the experts 7 percent is approximately the average investment performance of pension funds over the last 25 years. 3 percent below and 3 percent above this average value provides a good range to present low to high returns.

We have concluded that the attribute "past investment performance" is important to include in the conjoint analysis, while the attribute "current investment performance" is not. Literature states that a long-term view is optimal compared to a short-term (current) view as it includes economic trends (Campbell & Viceira, 2002; Hinz et al., 2010), and both focus group participants and the experts agree with these findings. We refer to the investment performance of the past 25 years, as experts state that this is a good period to reflect economic trends. We have selected the attribute levels 4%, 7% and 10% to represent the attribute "past investment performance", as literature revealed these numbers to adequately describe the average past investment performance of Dutch pension funds (Tapia, 2008; Srinivas, Whitehouse and Yermo, 2000). The experts and focus group participants agree that these

numbers correctly represent the average past investment performances of Dutch pension funds.

Coverage ratio

The fourth financial attribute which was introduced to the experts was "coverage ratio". The experts overall expect that young Dutch people take the coverage ratio of a pension fund into account when evaluating a pension fund. The experts expect that this, to some extent, is caused by the fact that pension funds, and their coverage ratios, have been in the news a lot lately. People react to this by contacting pension funds and asking questions about their coverage ratio and the consequences for their pension benefits. One might expect that coverage ratio is correlated with past investment performance, but as the coverage ratio depends on many more factors than investment performance this is not the case, according to the experts. For example, the Dutch government obliges pension funds to use short-term interest rates to calculate coverage ratios. As (short-term) interest rates tend to fluctuate significantly this has a major effect on the coverage ratio, not affected by investment returns. Consistent with the data provided by DNB (2010) and Mercer (2010), the experts agree that the following three levels show a realistic picture about a pension fund's coverage ratio: 90%, 105% and 120%. 105 percent is the boundary of under and overfunding as it is the coverage ratio required by the DNB, authorized by the Dutch government (DNB, 2010). Therefore, according to the experts it is a good value to use as the middle value. 90 percent is considered as a low coverage ratio and 120 percent as a high coverage ratio, which are both realistic in representing true current or past situations.

We agree with both the focus group participants and the experts that "coverage ratio" is an important attribute to include in the analysis, by using the following three levels suggested by literature: 90%, 105% and 120%. According to the experts and the focus group participants these levels correctly reflect a range of possible coverage ratios. As the Dutch government, represented by DNB, sets a minimum of 105 percent for pension funds' coverage ratios this value represents a sensible "medium" level. The focus group participants overall shared the opinion that the coverage ratio of a pension fund indicates the financial health of the fund, and therefore is an important attribute. Some experts feel that this notion is not correct, as a pension funds' coverage ratio is dependent on many factors such as interest rates. However, the experts do expect that young Dutch people's preferences for pension funds are influenced by this attribute, and therefore it should be included in the analysis.

Fund's total investment portfolio & Number of participants managed by the fund

We have asked the experts' opinions about the fifth and sixth financial attribute: "fund's total investment portfolio" and "number of participants managed by the fund". The experts agree that the total investment portfolio of a pension fund is important to young Dutch people as it is a direct indication of the size of the fund. The attribute "number of participants managed by the fund" is also a size measure, which is less important to include in the analysis than the attribute "fund's total investment performance". The experts agree that "fund's total investment performance" is a clearer and more appropriate size measure here. Size could have indirect consequences such as lower (or higher) expenses, but the experts – and academic literature – do not agree whether there is a relationship or correlation between these two factors. One could say that large funds have a bigger and therefore better diversified investment portfolio, which therefore perform better. But large funds might have communication problems, a lack of flexibility, or might misuse their knowledge in too much active investments, which increases risks significantly. One thing which is for sure, according to the experts, is the fact that large funds in general have a stronger brand name. Emotionally people will prefer a large pension fund over a small pension fund as "everyone else is choosing the big one, so it must be good". A large fund offers financial stability and trust: large funds often have the reputation of being a solid, safe option although this might not necessarily be the case. Whether positive or negative, experts expect that young people take size and therefore "fund's total investment portfolio" into account when selecting or assessing a pension fund. Experts do not expect any large differences between young and old people, although old people might focus more on the size of a pension fund as they are probably more risk averse than young people. According to the experts, the values <500 Million, 500 Million – 10 Billion and >10 Billion Euros correctly represent small, medium and large pension funds in the Netherlands. These values are different from what the literature suggests. The experts agree that the values suggested by the literature do not provide a fair division between small, medium and large pension fund in the Netherlands.

We select the financial attribute "fund's total investment portfolio" for the conjoint analysis, while we do not select the attribute "number of participants managed by the fund". Literature (Chen, Hong, Huang & Kubik, 2004; Bauer, Cremers & Frehen, 2010) suggests that the impact of scale on performance is significant, and therefore at least one size attribute should be included in the analysis. Focus group participants and experts agree that "fund's total investment portfolio" is more important than the attribute "number of participants managed by the fund". The levels which have been identified to use in the analysis are <500

Million, 500 Million – 10 Billion and >10 Billion Euros, which represent small, medium and large pension funds. These numbers are slightly different from what the literature suggests, as the in-depth interviews with experts revealed that these numbers represent an equal division of Dutch pension funds between small, medium and large pension funds. The five biggest pension funds in the Netherlands have an investment portfolio of more than ten Billion Euros (see table 2), while small pension funds generally are smaller than 500 Million Euros.

Advising costs & Administrative expenses

Next, we have introduced the seventh financial attribute "advising costs", and the eight financial attribute "administrative expenses" to the experts. Most experts agree that for young people the expenses of pension funds should be very important. However, several experts expect that expenses are less important to young people than they should be, as they might lack the understanding of the impact of expenses and therefore focus on returns. Most of the experts expect that "administrative costs" are much more important for young Dutch people than "advising costs". Each pension fund incurs administrative expenses which often have a significant influence on pension benefits. According to the experts, advising costs are only important in the third pillar and Defined Contribution schemes, where people need investment advice. In general people do not want to pay for pension or investment-advice, which is also not necessary in the current system. According to the experts the following levels correctly represent the administrative costs of pension funds: 0,3 %, 0,9% and 1,5%. These values are a bit higher than what the literature (Bateman & Mitchell, 2004; Bikker & de Dreu, 2006) says as, according to the experts, these numbers are more realistic. The main literature source we used is from 2006 (Bikker & de Dreu, 2006), and therefore this data is not entirely up to date. According to most experts, administrative expenses have increased since 2006, mainly caused by a change in the Dutch pension fund act, called "ontzaffing" in Dutch. Due to this change the formation of a pension fund manager is obligated for pension funds. This has increased administrative expenses significantly. Since this change in the pension fund act, less state-bonds are required to be part of the investment portfolio, which caused a more active investment portfolio, leading to higher investment expenses.

We have selected the attribute "administrative expenses", as both focus group participants and experts agree that this is an important attribute of pension funds. Literature shows that there is a strong relationship between expenses and fund performance (Bikker & de Dreu, 2006; Bauer, Cremers & Frehen, 2010). Therefore we expect administrative expenses to be an important attribute. Based on expert opinions we have selected the levels

0,3%, 0,9% and 1,5% of total fund's assets, to use in the analysis. These values are a bit higher than the levels suggested by literature (Bateman and Mitchell, 2004; Bikker & de Dreu, 2006), because administrative expenses have increased over the last few years.

We do not include the attribute "advising costs" in our analysis, as focus group participants and experts share the opinion that administrative expenses are more important than advising costs, as in the Dutch system these costs are less common. Also, literature (Bikker & de Dreu, 2006) shows that advising costs are less important than administrative expenses, as advising costs are not directly transferred to the end-consumers: the pension fund participants.

Pension plan

The ninth and final financial attribute introduced to the experts was "pension plan". Experts agree that "pension plan" is an important attribute for young people. However, as there are many pension plans on the market, which are not always linked directly to pension funds, several experts advice to exclude this attribute from the conjoint analysis. A lot of explanation would be needed to help the participants understand the different pension plans that exist. This would make the conjoint too complex. Therefore, the experts suggest to add a separate question to the questionnaire which measures participants overall preferences for different pension plans and its aspects. This question could then be further analyzed in future research focusing specifically on pension plans, not pension funds.

We decided not to include the attribute "pension plan" in the conjoint analysis as several experts advised us not to do so. Instead, we have added a separate question to the questionnaire, providing clear explanations. Future research could analyze the outcomes of this question.

5.2.2 Non-financial attributes
Socially Responsible Investments

Next to the financial attributes, one non-financial attribute was introduced to the experts: "Socially Responsible Investments (SRI)". Experts agree that this is an important attribute to include in the analysis, although opinions differ with respect to the importance people give to SRI. According to some experts people generally prefer a pension fund that invests socially responsible over a pension fund that doesn't, but especially young people do not realize that this might be reduce financial returns. Other experts state that people only want SRI when it does not cost them any money or lower returns. As young people grew up in a world which

cares more about the environment and other SRI issues, they are expected to care more about SRI than older people. Although young people probably only care about parts of SRI, such as the environment and human rights. Issues such as corporate governance are probably less important for young people, according to the experts. Most experts expect that young people, more than older people, want to have an influence on their investments, including the social part of it. Although experts generally agree that SRI is an important attribute to include as it shows a nice comparison between financial and non-financial attributes, they expect that financial attributes will matter most for young Dutch people. The experts expect young people to care more about SRI than old people. However they expect no large differences as the financial goal of pensions (high pension payments) is most important, which makes SRI less important. Some experts even expect SRI to become less important in the future as pension funds on average are performing worse than before. The experts agree that the attribute levels Yes and No should be used in the analysis, as a pension fund can choose (to some extent) to invest socially responsible or not. It is very difficult to assess SRI with numbers or in relative terms, therefore Yes and No are the best values to use.

We include SRI as an attribute in the conjoint analysis as several experts and focus group participants indicate that this attribute is important to include. Several focus group participants feel that even though SRI is important, financial attributes are more important than this non-financial attribute. The experts also expect that most young Dutch people will value financial attributes higher than non-financial attributes. As it is very difficult to assess SRI with numbers or in relative terms, according to the experts and focus group participants, Yes and No are the best values to use as attribute levels for this attribute.

5.2.3 Behavioral factors

We have asked the experts to what extent they expect behavioral biases to affect (young) people's preferences for pension funds. The experts generally expect that myopia, self-control, risk aversion and overconfidence all have a direct influence on young people's pension fund preferences.

Some experts indicate that they expect risk aversion to differ between men and woman and between different age groups. They expect woman to be more risk averse than men and old people to be more risk averse than young people. Therefore men and young people will probably prefer a more risky pension. These expectations are consistent with academic literature on this subject. One of the experts expects that risk averse people choose pension funds which invest socially responsible, even though they might have lower returns. Also risk

averse people are conservative and therefore prefer large funds as these are perceived as safe. The experts expect that risk aversion causes people to choose for DB instead of DC pension plans.

Experts generally expect that overconfidence has an influence on the risk taking and freedom of choice of people in their pension. This has a direct effect on the choice in pension plans and pension funds. Experts expect that more overconfident people will choose DC plans while less overconfident people choose DB plans. Experts also expect differences between people caused by demographic factors. Young, high educated men are expected to be most overconfident.

The experts expect young people to be more myopic than old people, which causes young people to be less interested in their pension. However, the experts do not expect significant influences of myopia on the pension fund preference structure of young Dutch people. The same holds for self-control. The experts expect young people to have less self-control than old people, which causes young people to invest less in their pension fund. However, according to the experts, this bias does not influence young people's preferences for pension fund attributes.

Eventually, based on literature, the focus groups and the in-depth interviews, we have decided to include the behavioral biases risk-aversion and overconfidence in our analysis as we expect these biases to have a significant influence on the preference structures of young Dutch people for pension funds. Experts expect these biases to influence young people's pension fund preferences, and recommend to use these two biases in the analysis as there are qualitative measures available to test them.

5.3 Conjoint design

The findings from literature review, focus groups and in-depth interviews have been used to design the conjoint study. The number of identified attributes is five, allowing us to use a full-profile conjoint design, which gives a realistic description of stimuli by defining the levels of each of the factors (Green & Srinivasan, 1990; 1978). It is not necessary to evaluate all the possible combinations, nor is it feasible in all cases. We have applied fractional factorial designs to reduce the number of stimulus profiles. Finally, we have presented a total of 16 full-profiles to the participants, which were asked to be rated according to their preferences using a 9-point Likert scale. We have used this scale as "the Likert scale is a widely used rating scale that requires the respondents to indicate a degree of agreement or disagreement with each of a series of statements about the stimulus objects" (Hair et al., 2006, pp 502).

5.3.1 Demographic & behavioral factors

Conjoint analysis outcomes are compared between demographic and behavioral groups. We have asked respondents several demographic questions, such as age, gender and (financial) education, and they were asked to assess certain statements by using a 7-point Likert scale.

Risk aversion

In order to measure risk aversion we used a psychometric scale derived from Kalogeras et al. (2009) and first introduced by Pennings and Smidts (2000). We have slightly adjusted the statements used in this method in order to refer to risk taking in pensions. Participants were asked to indicate their agreement with each item of risk attitude construct on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree):

1. I am willing to take higher financial risks when investing in my pension plan to realize higher benefits when I retire
2. I am willing to take large financial risks in general
3. I am willing to take large financial risks when investing in my pension plan to realize higher than average benefits when I retire
4. I like to "play it safe" in general

Overconfidence

In order to measure overconfidence we use the measurement of Dorn and Sengmueller (2009). We ask the survey participants' agreement with the statement "(1) My past investment successes were, above all, due to my specific skills" to measure the self-enhancing attribution bias. We use the investor's agreement with the statement "(2) I am much better informed than the average investor" as a proxy for the tendency to overestimate one's knowledge, or relative knowledge. To estimate the illusion of control of participants, we use an aggregate score using the investors' responses to four statements:

3. I always know the status of my personal finances
4. When I make plans, I am certain that they will work out
5. I control and am fully responsible for the results of my investment decisions
6. I am in control of my personal finances

For each statement participants can indicate their agreement by selecting a number from 1 (very much disagree) to 7 (very much agree).

5.4 Data collection

In order to collect data for this study's purpose a survey was conducted, which involves interviewing a large number of respondents by using a predesigned questionnaire (Malhotra, 2007). The questionnaire used for this research consists of three parts; the first part focusing on demographic questions, the second part including behavioral questions and statements, and the third part consists of a full-profile conjoint analysis. A more detailed overview of the questionnaire can be provided upon request from the author.

5.5 Pre-test

In order to identify and eliminate potential problems of the questionnaire (Malhotra 2007), we performed a pre-test with 12 young Dutch people, consisting of fellow students, friends and family members. No incentive was offered and participation was completely voluntary. The questionnaire was administered via a face-to-face interview in order to obtain clues about difficulties for the respondents. This is a good method to administer, because one can observe respondent's reactions and attitudes (Malhotra 2007). As a result, some questions were structured more precisely in order to avoid misleading and ambiguous meaning. Some questions had to be rephrased since they included words that were unfamiliar to the target population. Before sending out the questionnaires pension and survey experts from APG have checked the questionnaire, and advised to reduce the explanations between the questions.

5.6 Sample

The questionnaires were distributed to approximately 8040 Dutch people, men and women, aged 18-65, of various education and income levels. 8000 mailings, with a direct link to an online questionnaire, were distributed through APG to a selection of its newsletter members. Significantly more young than old people were contacted. Another 40 young Dutch people were contacted directly by e-mail, providing a link to the same online questionnaire. Through data selection processes we only analyze the young Dutch people's preferences, therefore using only the questionnaires of the young respondents. Finally 912 respondents completed the questionnaire which resulted in a response rate of 11,34 percent.

Chapter 6: Analysis

6.1 Data preparation

In order to prepare the data for analysis, we have coded, edited and verified the data (Malhotra, 2007). After sufficient data was collected, number codes were assigned to represent each response to each question in the questionnaire, and the data was uploaded in SPSS. Next, the total data file was inspected for errors, and corrected where necessary. We checked for missing values and changed odd-looking answers or wrong responses. Where necessary we adjusted the data. We have excluded respondents which indicated to be retired or older than 65 years old, as we focus on (young) working people and students. Next we have grouped the respondents in three age groups, by using the intervals young (<=30), middle-aged (30-45) and old (>45). As four of the optional education levels had a low sample size (primary school, secondary school, LBO, MBO) we added these four groups together in two education groups (primary or secondary school and LBO or MBO), which resulted in four education levels in total.

In order to calculate the total scale scores on the behavioral factors (overconfidence and risk aversion) we have reversed negatively worded items and added together the scores from all the items that make up subscales or scales. For the overconfidence scale we first calculated the scores for each of the three subscales and then calculated an overall average score. The reliability analysis, shown in the first part of the analysis, indicates that the scales and subscales are reliable and therefore total composite scores are correctly retrieved.

6.2 Reliability analysis scales

In this paragraph we examine different aspects of the reliability of constructs used in this study. First we check the scale's internal consistency, which is used to assess the reliability of a summated scale where several items are summed up to form a total score. The different items used in a scale should be consistent in what they indicate about the scale (Malhotra & Birks, 2003). In other words, the degree to which the items that make up the scale 'hang together' (Pallant, 2007). The internal consistency can be checked by means of the Cronbach's Alpha, which is the most sophisticated and widely applied index of internal consistency. Cronbach's Alpha examines the average inter-item correlation of the items in a questionnaire (Cortina, 1993), and varies from 0 to 1. Ideally, the Cronbach Alpha coefficient of a scale should be above 0,7, and a value of 0,6 or less indicates unsatisfactory internal

consistency of the scale (DeVellis, 2003). For overconfidence we checked both the subscale's and the total scale's reliability.

The results indicate excellent Cronbach's Alpha values for all scales and subscales (table 6), which means that there is satisfactory internal consistency reliability for all scales. Therefore the subscales can be averaged to form composite scores. These composite scores (for overconfidence and risk attitude) will be used for further analysis in this research. No negative inter-item correlations and no small values for item-total correlations were found, which shows that all items are measuring the same underlying characteristics.

Table 6: Reliability analysis

Scale	Cronbach's Alpha	Number of items
Risk attitude[a]	0,86	4
Overconfidence[b]	0,763	6
- Illusion of control	0,784	4

[a] Risk attitude is measured as the sum score of the risk-attitude scale, where 1 is highly risk averse and 7 is least risk averse.

[b] Overconfidence is measured as the sum score of three subscales (self-enhancing attribution bias, relative knowledge & illusion of control), where 1 is least overconfident and 7 is highly overconfident.

6.3 Descriptive Statistics: total data set

We collected a wide range of data with respondents varying in age, gender, occupation and (financial) education. These demographic characteristics are specified for our total sample group in table 7. First, we observe a relatively small frequency of 171 young people (age $\leq$ 30) versus 369 middle aged (age 30-45) and 370 old (age >45) people. This is quite surprising as we have contacted, through APG, a high amount of young people. As most young people probably lack sufficient interest for pensions they also response minimally to a survey in such subject. As this research focuses mainly on young Dutch people, we will focus our analysis mainly on this age group. Our total data set consists of 592 males and 318 females, 41 students, 853 working people and 16 people which have do not study or work. From the 910 respondents, 40 people finished primary or secondary school, 166 people finished LBO or MBO, and 412 finished HBO and 292 WO (University). 169 of the 910 respondents are financially educated, while most of the participants (741) are not.

Table 7: Demographic characteristics of respondents

Demographic characteristics		Frequency	Percentage
Age	≤ 30	171	18,8
	30-45	369	40,5
	> 45	370	40,7
Gender	Male	592	65,1
	Female	318	34,9
Occupation	Student	41	4,5
	Working	853	93,7
	Other	16	1,8
Education	Primary or secondary school	40	4,4
	LBO or MBO	166	18,2
	HBO	412	45,3
	WO	292	32,1
Financial education	Yes	169	18,6
	No	741	81,4
Total		910	100

6.4 Financial versus non-financial pension fund attributes

In this chapter we focus on testing and building conclusions about our hypothesis. We have performed a full-profile conjoint analysis on the respondents in the age group "Young" (age ≤ 30; N = 171). Before conducting the conjoint we have excluded the respondents which showed variances (between pension profile preferences) below 1, in order to correct for "jokers"; respondents that indicated approximately the same values on all profiles (Malhotra, 2007). After again checking for outliers and normality we have performed a conjoint regression. The output is displayed in table 8 until 11 and figure 2.

Table 8: Conjoint analysis - Cramer's V Statistics, N = 171

	Past investment performance	Coverage ratio	Administrative expenses	Total investment portfolio	SRI
Past investment performance	1	0.51	0.51	0.51	0.71
Coverage ratio	0.51	1	0.51	0.51	0.71
Administrative expenses	0.51	0.51	1	0.51	0.71
Total investment portfolio	0.51	0.51	0.51	1	0.71
SRI	0.71	0.71	0.71	0.71	1

Factors are not all orthogonal

Cramer's V statistics indicate that correlation coefficients range from 0 to 1 (table 8), with higher values indicating a stronger association between two variables (Pallant, 2007). As we can see from the table below, all values (except SRI) show correlations below 0,6 which are small. These results indicate that all attributes used in the conjoint measure show low levels of association, and therefore measure different aspects.

Table 9: Conjoint analysis – Correlations [a], N = 171

	Value	Sig.
Pearson's R	0,993	0,000
Kendall's tau	0,943	0,000

[a] Correlations between observed and estimated preferences

Table 9 shows the correlation coefficients, which is a measure for the quality of reproduction of the empirical data by the results of the conjoint analysis (Hair, 2005). Pearson's Rho and Kendall's Tau are goodness of fit measures. As with most fit measures, higher values indicate a better fit. As both the Pearson's Rho and Kendall's Tau are well above 0,9 and close to 1.0 we can conclude that our model fits very well.

Table 10: Conjoint analysis – Importance values, N = 171

Attributes	Importance values
Past investment performance	25,313 %
Coverage ratio	31,255 %
Administrative expenses	16,612 %
Total investment portfolio	13,547 %
SRI	13,273 %

Averaged Importance Score

The term averaged importance score, under the box with importance values (table 10), tells us that a combined conjoint analysis has been performed (Hair, 2005). These values give us a measure (in percentages) of the relative importance of the single factors for the determination of the utilities. Analyzing the relative importance or the preference structure accorded to the five salient attributes, the young Dutch people accorded the maximum utility / importance to the attribute "coverage ratio", with an importance of 31,255 percent. This means that young Dutch people perceive the coverage ratio of a pension fund as very important and decisive information. This confirms the findings from the in-depth interviews with experts, which expected the coverage ratio of a pension fund to be very important to young Dutch people. According to some experts this might be caused by the significant amount of media attention on this subject during the last year. Also, the focus group participants indicated that the coverage ratio of a pension fund is very important. The second most important attribute is "past investment performance", with an importance value of 25,313 percent. Apparently

young Dutch people find the past investment performance of a fund important as it influences their preferences, and therefore it might easily affect their (future) decisions. Thereafter at the third place in the worth hierarchy is the attribute of "administrative expenses" with a utility percentage of 16,612 percent. Then at the fourth place of the hierarchical framework, is the attribute "total investment portfolio" with an importance value of 13,547. The fifth and last attribute is the attribute "SRI" which is the least important factor according to the young Dutch people, valuing at 13,273. Apparently young people do not find this factor very important when assessing a pension fund. All financial factors are considered more important than this non-financial factor. Our findings confirm the outcomes from the focus groups and in-depth interviews with experts. Most focus group participants indicated that financial attributes are more important than non-financial attributes, and the experts expected the same for the young Dutch people. Figure 2 shows a graphic view of the importance values assigned to each factor.

Figure 2: Conjoint analysis – Importance summary
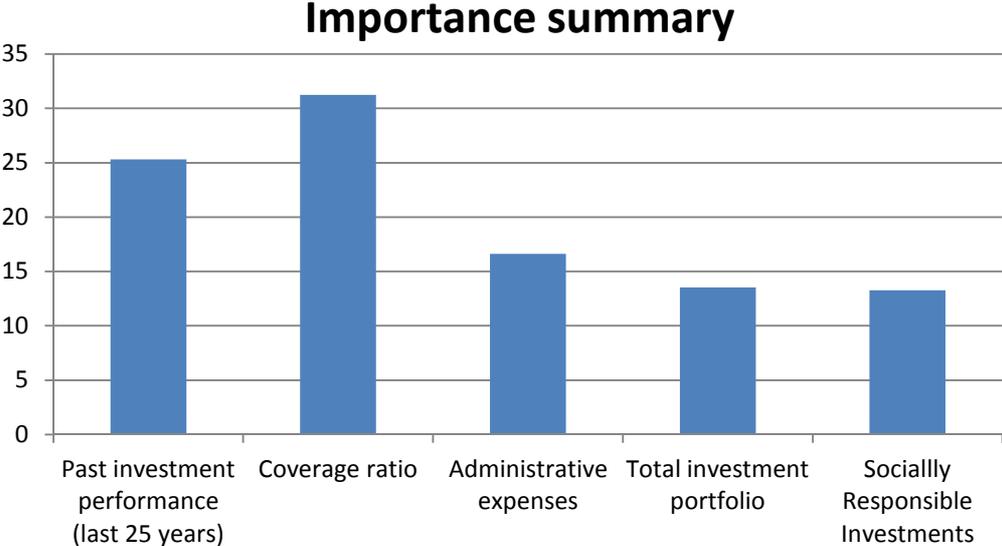
Next, we focus on the utilities assigned to each level within each factor. In table 11 we can see the utilities which participants on average assign to each factor level. When focusing on "coverage ratio", the attribute with the highest importance value, we can see that participants reward a coverage ratio of 105 percent with a high and positive utility of 0,647. A coverage ratio of 120 percent also shows a positive utility (0,610), although it is a bit smaller than the utility attached to the 105 percent coverage ratio. A coverage ratio of 90 percent shows a very negative utility of -1,257, which is the most negative utility assigned to all values of all factors. It is remarkable that an overfunded pension fund (120%) shows a lower utility,

although both positive, than a pension fund which is equal to the governmental minimum (105%). Past literature indicates that as the coverage ratio indicates the financial health of a fund (Bauer, Hoevenaars & Steenkamp, 2006), a rational person would prefer a pension fund with a high coverage ratio over a pension fund with a medium or low coverage ratio. As the young Dutch people prefer a medium coverage ratio over a high coverage ratio, they probably make emotional, rather than rational choices, perhaps caused by behavioral biases.

The attribute "past investment performance", shows the highest importance values and absolute utility estimates after the attribute "coverage ratio". From the utility estimates we can see that young Dutch people on average prefer high past investment performance (10%) over medium past investment performance (7%), which is again preferred over low past investment performance (4%). Again there is a strikingly negative relationship observed from the lowest value: when a pension fund's past investment performance is 4 percent the overall utility assigned to this fund decreases by 0,929. Through past literature (e.g. Grinblatt & Titman, 1992; Carhart, 1997; Hinz et al., 2010) we identified that as the (current or past) investment performance of a pension fund directly relates to a pension fund's financial performance, a rational person would prefer a pension fund with a high investment performance over a pension fund with a medium or low investment performance. Since we observe this exact behavior for the young Dutch people, they make rational choices with respect to the preferences for the attribute "past investment performance".

The attribute "administrative expenses" shows an interesting pattern. Medium administrative expenses (0,9 percent) are valued highest with a positive utility of 0,295, low administrative expenses are valued with a positive utility of 0,229, and high administrative expenses are valued negatively by -0,524. These results show that young Dutch people on average prefer medium administrative expenses over low and high administrative expenses. It could be the case that people falsely assign better performance to higher expenses, since medium expenses are preferred over low expenses, although too high expenses are considered as undesired and therefore have a negative effect on utility. Past literature reveals that there is a strong negative relationship between expenses and a pension fund's financial performance (Bikker & de Dreu, 2006; Bauer, Cremers & Frehen, 2010). Therefore a rational person would prefer a pension fund with low expenses over a pension fund with a medium or high expenses. As the young Dutch people prefer a medium administrative expenses over low administrative expenses, they probably make emotional, rather than rational choices, perhaps caused by behavioral biases.

As shown before, the attributes "total investment portfolio" and "Socially Responsible Investments (SRI)" are the least important to young Dutch people when assessing or choosing a pension fund. Young Dutch people on average negatively assess a small pension fund (<500 Million) with a value of -0,237. While a medium sized pension fund (500 Million – 10 Billion) is valued highest, with a positive value of 0,132. A large pension fund (>10 Billion) shows a positive value of 0,105. Therefore we can conclude that young Dutch people on average prefer a medium sized pension funds, for reasons we can only guess. Perhaps because they feel low pension funds do not benefit from economies of scale and large pension funds have communication or liquidity problems. We cannot conclude whether the preference for medium sized pension funds is a rational or an emotional choice, as literature shows no clear negative or positive relationship between the size of a pension fund and a pension fund's financial performance. Young Dutch people on average positively assess pension funds that invest socially responsible with a value of 0,270, while they negatively assess pension funds that do not invest socially responsible with a value of -0,270. Past literature (e.g. Vyvyan, Ng and Brimble, 2007) shows that the socially responsible investments of a pension fund directly relates to a pension fund's non-financial performance. Therefore a rational person would prefer a pension fund that invest socially responsible over a pension fund that does not. As the young Dutch people prefer pension funds that invest socially responsible over pension funds that do not invest socially responsible, they probably make rational decisions with respect to this non-financial attribute.

Table 11: Conjoint analysis – Partial utility values, N = 171

Attributes	Values	Partial utility	Std. error
Past investment performance	4 %	-,929	,088
	7 %	,278	,100
	10 %	,651	,100
Coverage ratio	90 %	-1,257	,088
	105 %	,647	,100
	120 %	,610	,100
Administrative expenses	0,3 %	,229	,088
	0,9 %	,295	,100
	1,5 %	-,524	,100
Total investment portfolio	<500 Million	-,237	,088
	500 Million – 10 Billion	,132	,100
	>10 Billion	,105	,100
SRI	Yes	,270	,066
	No	-,270	,066
(Constant)		5,072	,076

From the 15 pension fund profiles we showed to the participants, the profile in figure 3 is the pension fund profile which on average is the most preferred by the young Dutch people. The total utility value for this profile is 6,694, which is the highest of all pension fund profiles. We have calculated the total utility value of each profile by using the partial utility values provided in table 11. For each profile, we interpreted the constant term as the base utility, and we added the positive partial utility values and subtracted the negative partial utility values. This resulted in total utility values for all pension fund profiles, with pension fund profile number 3 having the highest value. Of the 15 pension fund profiles introduced to the young Dutch people, pension fund profile 3 is the most preferred.

Figure 3: Most preferred pension fund profile by young Dutch people, N = 171

	Average investment performance (last 25 years)	7 %
Pension fund 3	*Coverage ratio*	105 %
	Administrative expenses	0,9 %
	Total investment portfolio	500 Million – 10 Billion €
	Socially Responsible Investments	Yes

We can conclude by saying that all levels of the selected financial and non-financial attributes contribute in an additive way to the young people's overall utility. However we can clearly see a difference in importance given to financial and non-financial attributes of pension funds. The financials of a pension fund (especially coverage ratio past investment performance) seem to be of high importance to young Dutch people in a pension fund. According to our research, the optimal pension fund for young Dutch people would be a pension fund with a medium average investment performance (of the last 25 years) of 7 percent, a coverage ratio of 105 percent (resembling the governmental minimum), medium administrative expenses of 0.9 percent, a medium-sized investment portfolio of 500 Million – 10 Billion Euros, and the pension fund invests socially responsible. Our results show that young Dutch people do not have purely rational preferences for pension funds, which could be caused by behavioral biases. Also, demographic factors could play a role here. These relationships are described in the following paragraphs.

6.5. Demographic factors

6.5.1 Effect of age on pension fund preferences

In order to identify any effect of age on pension preferences we have performed separate conjoint analyses on the three age groups we defined earlier (Young, Middle aged and Old).

Next, we have calculated the overall importance values of each respondent and compared these within age groups by performing a one-way ANOVA test (table 12). In the last column of table 9 we show the significance levels of this ANOVA test. For each attribute we have compared the importance values of the different age groups. We find that the attributes "Past investment performance", "Administrative expenses" and "Total investment portfolio" differ significantly between some of the age groups.

Table 12: Conjoint age groups – Importance values, N = 910

	Importance values, N = 910			ANOVA Sig.
	Young (≤ 30) N = 171	Middle aged (30-45) N = 369	Old (> 45) N = 370	
Past investment performance	25,313 %	22,262 %	21,286 %	0,017**
Coverage ratio	31,255 %	31,189 %	33,163 %	0,288
Administrative expenses	16,612 %	17,904 %	15,628 %	0,012**
Total investment portfolio	13,547 %	13,743 %	15,665 %	0,005***
SRI	13,273 %	14,902 %	14,257 %	0,549

* Differs significantly at 10% significance level
** Differs significantly at 5% significance level
*** Differs significantly at 1% significance level

From the results in table 12 we cannot conclude which age groups differ. Therefore, we have performed Post Hoc tests to point out which age groups differ for each attribute. "Post hoc comparisons are used when conducting a whole group of comparisons, exploring the differences between each or condition in a study" (Pallant, 2007, pp 207). With respect to the attribute "Past investment performance" we find that the preferences of the group Young are significantly different from the group Old at a 5% significance level (Sig. = 0,012). Within this attribute the group Young also differs significantly from the group Middle aged, however at a 10% significance level (Sig. = 0,081). Within the attribute "Administrative expenses" significant differences have been found between the group Middle aged and Old. These groups differ at a 1% significance level (Sig. = 0,008). The last attribute which shows significant differences between age groups is "Total investment portfolio". Post Hoc tests show that the group Middle aged significantly differs from the group Old at a 1% significance level. The group Old also differs significantly from the group Young, however at a 5% level (Sig. = 0,033).

These results provide evidence for the proposed direct effects of age on pension preferences. Significant differences have been found between different age groups with

respect to their pension preferences regarding three of the five attributes used in the conjoint analysis.

6.5.2 Effect of gender on young people's pension fund preferences

In order to find a relationship between gender and pension preferences we have performed an independent samples T-test. We filtered the group Young (age ≤ 30) out of our dataset and continued the analysis with this age group only. First, we checked the results of the Levene's test for equality of variances. The Levene's test tests whether the variance (variation) of scores for the two groups (males and females) is the same (Pallant, 2007). The outcome of this test directed us to the suitable t-values for us to continue our analysis with. In table 13 we show the importance values that men and women on average give to each pension fund attribute. We report the appropriate significance values in the last column of the table, which shows whether the importance values from men and women are significantly different from each other.

Table 13: T-test between young men and young women, N = 171

| | Importance values | | T-test |
	Men	Women	Sig.
Past investment performance	27,8707	21,0667	0,002***
Coverage ratio	29,5757	34,0419	0,107
Administrative expenses	16,2555	17,2048	0,565
Total investment portfolio	13,0046	14,4480	0,281
SRI	13,2935	13,2386	0,985

* Differs significantly at 10% significance level
** Differs significantly at 5% significance level
*** Differs significantly at 1% significance level

We find a significant difference in the mean importance values assigned to "Past investment performance" between men and women, at the 1% significance level (Sig. = 0,002). On average men find "Past investment performance" a more important attribute of a pension fund than women. For the other four attributes, we do not find significant differences between men and women, however the attribute "Coverage ratio" is very close to the 10 percent significance level. On average women pay more attention to the "Coverage ratio" of a pension fund than men, although this relationship is not significantly proven.

These results provide some evidence for the proposed direct effects of gender on pension preferences. A significant difference has been found between men and women with

respect to their pension preferences regarding one of the five attributes used in the conjoint analysis, namely "Past investment performance".

6.5.3 Effect of education on young people's pension fund preferences

In order to find a relationship between education and pension preferences we have performed independent samples T-tests, again on the young people (age $\leq$ 30). We first compare pension preferences between young people with different education levels. We have grouped the education levels together in two groups – University degree and No University degree – as 54,1 percent of our total sample within young people have finished or are currently following academic education. Secondly, we compare pension preferences between financial and non-financially educated young people, including a Levene's test.

In table 14 we report the importance values young people with and without University degrees on average give to each pension fund attribute. The significance values in the last column of the table show whether the importance values from academics and non-academics are significantly different from each other. We find a significant difference in the mean importance values assigned to "Total investment portfolio" between young people with and without a University degree, at the 1% significance level (Sig. = 0,010). On average young people with a University degree find the total investment portfolio – the size – of a pension fund less important than young people with no University degree. The attribute "Past investment performance" also shows significant differences between young people with and without a University degree, however at the 10% significance level (Sig. = 0,077). Young people with a University degree find the attribute "Past investment performance" more important than young people without a University degree. For the other three attributes, we do not find significant differences between the two education groups.

Table 14: T-test between young people with and without a University degree, N = 171

	Importance values		T-test
	No University degree	**University degree**	**Sig.**
Past investment performance	23,0048	27,2682	0,077*
Coverage ratio	30,8186	31,6243	0,766
Administrative expenses	16,8714	16,3929	0,765
Total investment portfolio	15,3371	12,0309	0,010***
SRI	13,9682	12,6837	0,643

* Differs significantly at 10% significance level
** Differs significantly at 5% significance level
*** Differs significantly at 1% significance level

Table 15 shows the importance values which financially educated and not-financially educated young people on average give to each pension fund attribute. The appropriate significance values are reported in the last column of the table. We find a significant difference in the mean importance values assigned to the attribute "Past investment performance", at the 1% significance level (Sig. = 0,003). Young people who are financially educated find the attribute "Past investment performance" more important than young people which are not financially educated. This result is coherent with our comparison between young people with and without a University degree. For the attribute "Coverage ratio" we also find significant differences between financially and non-financially educated young people, however at a 5 percent significance level (Sig. = 0,023). For the other three attributes, we do not find significant differences between these two financial education groups.

Table 15: T-test – Young people with and without a financial education, N = 171

| | Importance values | | T-test |
	Financially educated	Not financially educated	Sig.
Past investment performance	29,2688	22,2535	0,003***
Coverage ratio	27,8008	33,9258	0,023**
Administrative expenses	17,2922	16,0866	0,454
Total investment portfolio	13,4465	13,6252	0,892
SRI	12,1917	14,1089	0,491

* Differs significantly at 10% significance level
** Differs significantly at 5% significance level
*** Differs significantly at 1% significance level

These results provide evidence for the proposed direct effects of education on pension preferences, both through education level and financial education. Significant difference have been found between young people with and without a University degree with respect to their pension preferences regarding two of the five attributes used in the conjoint analysis, namely "Total investment portfolio" and "Past investment performance". Between young people with and without a financial education we also find significant differences for two attributes, namely "Past investment performance" and "Coverage ratio".

6.6 Behavioral factors

6.6.1 Effect of risk aversion on young people's pension fund preferences

In order to measure the effect of risk aversion on young people's pension preferences we have performed an independent samples T-test. We divided the respondents in 2 groups: low risk

aversion and high risk aversion. As a large part of the sample scored low on risk attitude (high risk aversion), in order to obtain equal and comparable groups we have grouped the lowest 50 percent in the first group (low risk aversion) and the highest 50 percent in the second group (high risk aversion). Again we first checked the output of the Levene's test, which shows us which t-value to use. From the output shown in table 16 we can conclude that there are three pension fund attributes which show significant differences between low and high risk averse young people: "Past investment performance", "Coverage ratio" and "Administrative expenses". With respect to the attribute "Past investment performance" low risk averse young people indicate a significantly higher importance value than young people with high risk aversion, at a 1 percent significance level (Sig. = 0,007). For the attribute "Coverage ratio" low and high risk averse young people differ significantly from each other in their preferences, at a 5 percent significance level (Sig. = 0,023).

Young Dutch people who do not like risks –people with high risk aversion – on average find "Coverage ratio" a very important pension fund attribute, while they find "Past investment performance" a less important attribute. One could conclude that on average risk averse people find a "good" coverage ratio more important than a "good" past investment performance. Perhaps a low coverage ratio is perceived as riskier than low past investment performance. The last attribute which shows significant differences is "Administrative expenses", which shows an importance value that differs significantly between low and high risk averse young people, at a 5 percent significance value (Sig. = 0,038). Young people with low risk aversion value administrative costs much higher, relative to other attributes, than high risk averse young people. For the other two attributes, we do not find significant differences between these two risk aversion groups.

Table 16: T-test – Young people with low risk aversion and high risk aversion, N = 171

	Importance values		T-test
	Low risk aversion	High risk aversion	Sig.
Past investment performance	28,5567	22,1174	0,007***
Coverage ratio	28,1872	34,2765	0,023**
Administrative expenses	18,2705	14,9789	0,038**
Total investment portfolio	13,1389	13,9495	0,533
SRI	11,8467	14,6777	0,304

* Differs significantly at 10% significance level
** Differs significantly at 5% significance level
*** Differs significantly at 1% significance level

These results provide evidence for the proposed direct effects of risk aversion on pension preferences, and the possible influence of risk aversion on the irrational preferences of young Dutch people. Significant difference have been found between low and high risk averse young people with respect to their pension preferences, regarding three of the five attributes used in the conjoint analysis, namely "past investment performance", "coverage ratio" and "administrative expenses". As shown before, young people revealed irrational behavior for their preferences for both the attributes "coverage ratio" and "administrative expenses". Low and high risk averse young people differ significantly with respect to their pension preferences for these two attributes. This could indicate that risk aversion to some extent causes young Dutch people's irrational pension fund preferences.

6.6.2 Effect of overconfidence on young people's pension fund preferences

In order to measure the effect of overconfidence on young people's pension preferences we have performed an independent samples T-test. We followed the same approach as we did for risk aversion; First, we divided the respondents in 2 groups: low overconfidence and high overconfidence. Again we have grouped the lowest 50 percent and the highest 50 percent together. Next, the Levene's test showed us which t-value to use. From the output shown in table 17 we can conclude that there are no pension fund attributes which show significant differences between low and high overconfident young people.

These results provide no evidence for the proposed direct effects of overconfidence on pension preferences. No significant differences have been found between low and high overconfident young people with respect to their pension preferences.

Table 17: T-test – Young people with low overconfidence and high overconfidence, N = 171

| | Importance values | | T-test |
	Low overconfidence	High overconfidence	Sig.
Past investment performance	23,4544	27,3777	0,104
Coverage ratio	32,8524	29,4796	0,210
Administrative expenses	16,5132	16,7226	0,896
Total investment portfolio	13,3993	13,7117	0,810
SRI	13,7808	12,7084	0,698

* Differs significantly at 10% significance level
** Differs significantly at 5% significance level
*** Differs significantly at 1% significance level

6.7 Additional Analysis

In order to identify any mediating effects of the demographic factors on our behavioral scales, overconfidence and risk aversion, we have performed additional analysis. We have researched the effect of demographic factors on the behavioral factors, to find out whether differences in behavioral biases between people are caused by demographic differences. We have analyzed these effects for our total sample of 910 people as we also compare different age groups. As our research mainly focuses on young people, we have also performed separate two-way ANOVA's on the age group Young ($\leq$ 30 years). Through these tests we tried to find effects of demographic factors – Gender and Education – on both Risk taking and Overconfidence. The following section describes the results of the analysis of the total sample of 910 people.

6.7.1 Effect of demographic factors on risk aversion

In order to find the effects of the demographic factors – age, gender and education – on risk aversion we have performed an adjusted two-way between-groups ANOVA. Our between-groups ANOVA is adjusted as we have added one more demographic factor to the analysis, which makes it a three-way ANOVA. Our independent variables are age, gender and education, while our dependent variable is risk taking. After performing our analysis we first look at the descriptive statistics to check that all values are correct. Next we check the Levene's test of equality of error variances, and concluded that we have not violated the homogeneity of variances assumption.

Table 18: Tests of Between-Subjects Effects, N = 910 (dependent variable: risk taking)

Source	Sig.
Age	0,022
Gender	0,005
Education	0,073
Age*Gender	0.821
Age*Education	0,297
Gender*Education	0,994
Age*Gender*Education	0,696

In table 18 the outcomes of the tests of between-subjects effects are displayed. As none of our interaction effects are significant (Age*Gender, Age*Education, Gender*Education and Age*Gender*Education are > 0.05) we can state that there is no significant difference in the effect of the demographic factors Age, Gender and Education which is influenced by any of the (other) demographic factors. As we did not find a significant interaction effect, we can safely interpret the main effects of each independent variable separately. Table 15 shows that

there is a significant main effect for Gender (Sig. = 0,005), at a 1 percent significance level. Therefore we can conclude that males and females differ significantly in terms of their risk attitude. Males on average take significantly more risks than women, or stated otherwise: males are less risk averse than women.

Table 19: Post-Hoc tests between age groups, N = 910

Age group	Age group	Mean difference	Sig.
≤ 30 years	30 – 45 years	0,2951*	0,043
	> 45 years	0,4242*	0.002
30 – 45 years	≤ 30 years	-0,2951*	0,043
	> 45 years	0,1291	0,363
> 45 years	≤ 30 years	-0,4242*	0,002
	30 – 45 years	-0,1291	0,363

* The mean difference is significant at the 0,05 level.

Age also shows a main affect (Sig. = 0,022) at a 5 percent significance level, which provides proof for the fact that people in different age groups differ significantly in terms of their risk attitude. As we have more than one age group we need to look at the outcome of the Post-Hoc tests in order to find out where these differences occur. The results show that the age group Young (≤ 30 years) differs significantly from both the Middle-aged (30 – 45 years) and Old (> 45 years) age groups, at a 5 percent significance level. For the factor Education we do not find significant differences between Education level groups (Sig. = 0,073).

6.7.2 Effect of demographic factors on overconfidence

In order to measure the effects of demographic factors on overconfidence we again have performed a between-groups ANOVA; adjusted to a three-way between-groups ANOVA. The Levene's test of equality of error variances, which shows that we have not violated the homogeneity of variances assumption.

Table 20: Tests of Between-Subjects Effects, N = 910 (dependent variable: overconfidence)

Source	Sig.
Age	0,316
Gender	0,133
Education	0,011
Age*Gender	0.779
Age*Education	0,594
Gender*Education	0,249
Age*Gender*Education	0,510

In table 20 the outcomes of the tests of between-subjects effects are displayed. As none of our interaction effects are significant (Age*Gender, Age*Education, Gender*Education and Age*Gender*Education are > 0.05) we can state that there is no significant difference in the effect of the demographic factors Age, Gender and Education which is influenced by any of the (other) demographic factors. Therefore we can safely interpret the main effects of each independent variable separately. In table 20 we can see that there is a significant main effect for Education (Sig. = 0,011), at a 5 percent significance level. Therefore we can conclude that people in different education level groups differ significantly in terms of their overconfidence.

Table 21: Post-Hoc tests between age groups, N = 910

Age group	Age group	Mean difference	Sig.
Primary or secondary education	LBO or MBO	-0,0784	0,976
	HBO	-0,2687	0,418
	WO	-0,3784	0,143
LBO or MBO	Primary or secondary education	0,0784	0,976
	HBO	-0,1904	0,247
	WO	-0,3001*	0,025
HBO	Primary or secondary education	0,2687	0,418
	LBO or MBO	0,1904	0,247
	WO	-0,1097	0,523
WO	Primary or secondary education	0,3784	0,143
	LBO or MBO	0,3001	0,025
	HBO	0,1097	0,523

* The mean difference is significant at the 0,05 level.

The results of the Post-Hoc test are displayed in table 21. The education level LBO or MBO differs significantly from the education level WO, at a 5 percent significance level. This indicates that higher educated people on average are significantly more overconfident than lower educated people, which makes sense. Also when we look at the descriptive statistics we can conclude that overconfidence increases gradually with education level. People with an education level of primary or secondary school are even less confident than LBO or MBO educated people, however probably because of the low sample size of this group (N = 34) the between-groups ANOVA test does not pick up any significant differences here.

For the factors Age and Gender we do not find significant differences between groups, as the significance levels are above 5 percent, and therefore not significant (Age: Sig. = 0,316; Gender: Sig. = 0.133).

Chapter 7: Discussion

7.1 Main conclusions

By conducting focus group meetings, in-depth interviews and a conjoint analysis, this study provides new insights on young Dutch people's preferences for financial versus non-financial attributes of pension funds. This thesis is the first research that empirically identifies the relevance of these attributes for pension funds from the perspective of a young Dutch person (Age $\leq$ 30). We developed an empirical research design to identify the subjective utility that young Dutch people attach to pension fund attributes. The empirical context is the Dutch pension market, which is transforming from a Defined Benefit market to a more individualistic Defined Contribution market (Kooreman & Prast, 2010). Overall, this study revolves around the following research question:

What are young people's preferences for financial versus non-financial attributes of pension funds?

The results show that all the financial and non-financial attributes that we identified, drive young people's preferences (utility) for pension funds. The high importance that young people attach to financial attributes reveals their preference for financially strong and healthy pension funds. The financial attribute "coverage ratio" is the most important pension fund attribute for young Dutch people. All four financial attributes are more important to young people than the non-financial attribute we have identified: Socially Responsible Investments. We can conclude that young people find it important that pension funds invest socially responsible, however this is less important for young people than any of the financial pension fund attributes. This is consistent with our focus group and interview findings, as both the participants in the focus groups and the experts expected financial attributes of pension funds to be of more important to young people than non-financial attributes. We find that young people's preferences for two financial attributes are irrational, which may be caused by behavioral biases such as framing effects and risk aversion.

We have found some significant differences between demographic and behavioral groups, with respect to pension fund preferences. Old people, more than young people, prefer large pension funds over small ones, perhaps because they are perceived as less risky or provide economies of scale. On the other hand, young people care more about the past

investment performance of a pension fund. The past investment performance of a pension fund is particularly important for young men and young people with a University degree, while for women and young people without a university degree the total investment portfolio (i.e. the size) of a pension fund is more important. An interesting finding is that the coverage ratio of a pension fund is more important to young people that are not financially educated, compared to young people that are financially educated. Perhaps the young people that are not financially educated are influenced by other factors such as the amount of media attention. This is also what the experts suggested during the in-depth interviews. We find that risk aversion influences young people's pension fund preferences, while overconfidence does not. This confirms the expectations of the experts, which expected overconfidence to influence young people's preferences for pension plans, but not so much for pension funds. The fact that the coverage ratio of a pension fund is of high importance to risk averse young people indicates that the coverage ratio of a pension fund is probably linked to the riskiness of the fund.

We can conclude that young Dutch people on average find the financial attributes of pension funds more important than the non-financial attribute(s) of pension funds. Young Dutch people show signs of irrational behavior, which might be caused by behavioral biases. Demographic differences could also play a role here. The exact influence of the behavioral biases and demographic differences on the young Dutch people's pension preferences could be subjects for future research.

7.2 Theoretical contribution

Past research on pension preferences involves only single attributes, mainly focusing on pension plans (van Rooij, Kool & Prast, 2007), other personal retirement preferences (Benartzi & Thaler, 2001; Millar & Devonish, 2009)) and the mutual funds market (e.g. Ramasamy & Yeung, 2003; Gözbaşı and Çıtak, 2010). Our study researches the preference structures of young Dutch people for several financial and non-financial attributes of pension funds. Our results clearly show that there are multiple financial and non-financial attributes, other than the ones researched before, which drive young Dutch people's preferences for pension funds. We contribute to Gupta (2006), who found that employees care about pension risk; the level of funding of a pension fund. We show that young Dutch people care about pension risk, as they negatively assess a pension fund with a low coverage ratio; an underfunded pension fund. The high importance of the coverage ratio and past investment performance of pension funds confirms past research of these attributes (e.g. Grinblatt &

Titman, 1992; Brown & Goetzman; 1995; Bauer, Hoevenaars & Steenkamp, 2006; Gupta, 2006). Our research contributes to past literature on pension fund attributes, as we show the importance of each attribute to young Dutch people. Also, we confirm that preferences are driven by variables or attributes that describe the (competitive) environment (Bettman, Luce & Payne, 1998).

We contribute to past research on behavioral decisions, such as hedonic and utilitarian choice (Hirschman & Holbrook, 1982; Babin, Darden & Griffin, 1994; Khan & Dhar, 2004; Chernev, 2004), as we compare young people's preferences for financial (i.e. utilitarian) and non-financial (i.e. non-utilitarian) attributes of pension funds. We show that financial attributes of pension funds are on average more important to young Dutch people than non-financial attributes.

Our results show that young Dutch people show irrational behavior in their pension fund preferences. This finding confirms and contributes to past literature on behavioral finance (e.g. Belsky & Gilovich, 1999; Carty, 2005), which tries to explain why people make investment decisions that harm their self-interest. We show that young Dutch people on average prefer a medium coverage ratio over a high coverage ratio, and medium administrative expenses over low administrative expenses. These are irrational decisions which might harm the young people's self-interest. We confirm past research on *framing* (Kooreman & Prast, 2010), as the young Dutch people in our research tend to prefer the choice in the (literal) middle. This is one type of framing effect. We contribute to van Rooij, Kool and Prast (2007) and Benartzi and Thaler (2001) by showing that young Dutch people tend to frame the decision problem of pension fund preferences.

We research the influence of two behavioral factors (overconfidence and risk aversion) and three demographic factors (age, gender and education) on young people's preferences for pension funds. Literature on behavioral biases (e.g. Shefrin, 2002, Benartzi & Thaler, 2005) well explains the effects and possible consequences of behavioral biases. But, to the best of our knowledge, no research so far has linked behavioral and demographic factor to the pension fund preferences of young Dutch people. Past research did focus on pension plan preferences, but not on pension fund preferences. Van Rooij, Kool and Prast (2007) found a relationship between risk aversion and pension plan preferences of Dutch people. Benartzi & Thaler (1995), Holt and Laury (2002) and Shefrin, (2002) found that risk aversion risk aversion has an impact on the retirement decisions of individuals. We contribute to these findings by showing that risk aversion influences the pension fund preferences of Dutch young people.

7.3 Managerial contribution

The findings of this thesis may have managerial implications for pension providers. The great importance that young Dutch people attach to the financial attributes of pension funds indicates that young people ultimately regard financial performance to be the most important goal of a pension fund. Financial outcomes and results seem to be valued higher by the average young Dutch person than non-financial policies, such as Socially Responsible Investments. However, our results do not suggest that SRI is not important to young people. Pension funds that do invest socially responsible are valued higher (by higher utilities) by young Dutch people than pension funds that do not invest socially responsible. Pension providers should realize the importance of SRI for young Dutch people.

Preferences are driven by variables or attributes that describe the (competitive) environment (Bettman, Luce & Payne, 1998). We find that the attributes "coverage ratio" and "past investment performance" are the most important pension fund attributes for young Dutch people. Pension providers should therefore carefully assess the influence of these attributes on young Dutch people's opinions and actions. Communications about coverage ratios and investment performances might need improvements, and should therefore be reviewed.

Our results show that young Dutch people often make emotional rather than rational decisions with respect to their pension fund preferences. These emotional decisions are likely to be based on behavioral biases, such as risk aversion. Also, demographic factors such as age, gender and education influence (young) Dutch people's pension preferences. Therefore, pension providers may consider to create different (communication) strategies and to develop products based on demographic and behavioral characteristics. The pension world is definitely becoming more individualistic, which is important to realize.

7.4 Limitations

Three major limitations of our research should be mentioned. First, a limited number of young people participated in our research, compared to the older age groups. This may be caused by a disinterest in the subject, or perhaps because the questionnaire was too difficult or long. We have received some responses from participants about the difficulty of the questionnaire, which may partly explain the relatively low number of young people that responded compared to the older people. Second, among the young people that responded there were many highly educated people (mainly students), which could lead to a bias in our results. Third, when analyzing the influence of demographic and behavioral factors on pension fund preferences,

we did not take any mediating effects into account. We did some extra analysis to reveal the differences in behavioral biases between demographic groups. However, we did not study to what extent the effects of behavioral factors on pension fund preferences are mediated by demographic factors. Future research could perhaps clarify this relationship.

7.5 Future research

Overall, young people consider financial attributes (e.g., coverage ratio) as more important than the non-financial attribute Socially Responsible Investing. Future research may build on these results, by examining whether any other (non-financial) attributes drive young people's preferences for pension funds. It would be interesting to research the preferences of young Dutch people for the pension plans which exist, or those which might be implemented in the future, in the Netherlands. Also, the influence of other behavioral factors, such as myopia and self-control, on pension preferences could be a topic of future research. As mentioned before, we did not study to what extent the influence of behavioral factors on pension fund preferences are mediated by demographic factors. Future research might explore this question.

Experts indicated that they expect the media to influence young Dutch people's preferences for pension funds. A high amount of (positive or negative) media attention for a certain attribute might influence the preference structure for this attribute. Future research might research this relationship.

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