DECISION MAKING UNDER UNCERTAINTY AND COMPLEXITY

-A study of young investors’ decision to buy warrants

BESLUTSFATTANDE UNDER OSÄKERHET OCH KOMPLEXITET

- En studie av unga investerares beslut att köpa warranter

Bachelor thesis

Authors: Marie Karlsson and Linda Kraufvelin

International Business Programme, Spanish

Spring term 2009

Tutor: Stefan Schiller
ABSTRACT

Title: Decision Making Under Uncertainty and Complexity: A Study of Young Investors’ Decision to Buy Warrants.

Authors: Marie Karlsson and Linda Kraufvelin

Tutor: Stefan Schiller

Background: A warrant is a derivative that is normally issued over stocks. During the last financial crisis, the trading of warrants reached new records. The high leverage and the complexity of the product make the warrant a risky investment. Financial products such as warrants therefore imply a significant purchase decision for an individual and the consequences of making a poorly thought-out choice can be of considerable importance. Financial products require a high degree of involvement since the decision process is characterized by uncertainty of outcome and complexity of the product. Traditional theories on consumer decision making build on the assumptions of self-interest and rationality. In the context of financial services, the rationality of the decision process has been questioned within the field of behavioral economics, a field that suggests that the consumer is unable to make rational decisions as well as comparative judgments.

Purpose: With a theoretical basis in the traditional consumer decision process, the purpose of this thesis is to examine and describe the decision making of young investors that buy warrants.

Methodology: The study can be described as abdicative, since the subject of this thesis is based on an empirical problem observed in reality as well as based on existing theories on the subject. The thesis is furthermore a mixed qualitative and quantitative study. The empirical information was gathered using an Internet survey that was sent out to young investors that are members or are connected to financial associations or societies at different universities.

Results: The study is considered to show that the decision making of young investors can be described as neither optimal nor rational when buying warrants. The respondents seldom seem to make efficient and as rational decisions as the traditional decision process model implies. Instead, individual characteristics and attitudes of the young investors affect their decision making.

Key words: Decision making, consumer decision process, uncertainty and complexity of financial services, rationality, behavioral economics.
# TABLE OF CONTENTS

1. INTRODUCTION ......................................................................................................................... 8
   1.1 BACKGROUND ....................................................................................................................... 8
   1.2 PROBLEM DISCUSSION ......................................................................................................... 10
   1.3 RESEARCH QUESTIONS ........................................................................................................ 11
   1.4 PURPOSE ............................................................................................................................... 11
   1.5 DELIMITATIONS ................................................................................................................. 12
   1.6 TARGET GROUP .................................................................................................................... 12
   1.7 DISPOSITION OF THE THESIS .......................................................................................... 13

2. METHODOLOGY ......................................................................................................................... 14
   2.1 RESEARCH PHILOSOPHY ..................................................................................................... 14
   2.2 RESEARCH APPROACH ....................................................................................................... 15
      2.2.1 Inductive, deductive or abdicative approach ................................................................. 15
      2.2.2 Quantative and Qualitative research ............................................................................. 15
   2.3. DATA COLLECTION ............................................................................................................ 16
      2.3.1 Information sources: primary and secondary data......................................................... 16
      2.3.2 Survey research ............................................................................................................. 17
      2.3.3 Sample selection ............................................................................................................ 19
      2.3.4 administration and analysis of the survey ................................................................. 20
   2.4 THE QUALITY OF THE RESEARCH ................................................................................. 21
      2.4.1 Validity .......................................................................................................................... 21
      2.4.2 Reliability ..................................................................................................................... 22
      2.4.3 Objectivity .................................................................................................................... 22
      2.4.4 Source criticism .......................................................................................................... 23
   2.5 SUMMARY ............................................................................................................................ 24

3. THEORETICAL FRAMEWORK ............................................................................................... 25
   3.1 SELECTION OF THEORIES ............................................................................................... 25
   3.2 THE CONSUMER DECISION PROCESS MODEL .............................................................. 25
      3.2.1 Need Recognition ......................................................................................................... 26
5.3.2 Search for information ........................................................................................................ 53
5.3.3 Pre-purchase evaluation ..................................................................................................... 54
5.3.4 Purchase ............................................................................................................................ 55
5.3.5 Post-consumption evaluation ............................................................................................. 56

6. CONCLUSION ........................................................................................................................... 58

6.1 What are the main characteristics of the young investors that are involved and interested
in buying warrants? .......................................................................................................................... 58
6.2 What differentiates the decision process of buying warrants, which is a financial product,
from the traditional consumer decision process? ............................................................................. 58
6.3 How can the decision making under uncertainty and complexity be described when young
investors buy warrants? .................................................................................................................... 59

7. DISCUSSION .............................................................................................................................. 60

7.1 HOW TO APPROACH YOUNG INVESTORS ........................................................................... 60

8. PROPOSALS FOR FURTHER RESEARCH ...................................................................................... 61

9. REFERENCES .............................................................................................................................. 62

9.1 BOOKS ...................................................................................................................................... 62
9.2 ARTICLES .................................................................................................................................. 62
9.2 ELECTRONIC SOURCES .......................................................................................................... 63

APPENDIX I ..................................................................................................................................... 65

APPENDIX II .................................................................................................................................... 68
TABLE OF FIGURES

Figure 1: Disposition of the thesis..........................................................13
Figure 2: Visualization of the method for the thesis..................................24
Figure 3: Own adaptation of the consumer decision process model.........25
Figure 4: Need recognition....................................................................26
Figure 5: Utility functions for different preferences towards risk........33
Figure 6: Prospect theory....................................................................35
Figure 7: Theoretical model.................................................................36
Figure 8: Analysis model....................................................................50

TABLES

Table 1: Risk willingness combined with future purchases....................47

DIAGRAMS

Diagram 1: Financial experience from buying other products.............37
Diagram 2: Number of purchases and degree of involvement...............38
Diagram 3: General buying behavior and degree of involvement...........39
Diagram 4: Number of purchases and degree of knowledge..................40
Diagram 5: The search for information before a new purchase............42
Diagram 6: Opinions about the information provided by banks/stockbrokers...43
Diagram 7: Factors that influence the choice of warrant.....................43
Diagram 8: The importance of the issuer when selecting warrant...........46
Diagram 9: The origin of the money invested in warrants.....................48
**Vocabulary**

**Equity-linked notes:** bonds whose payments are linked to the performance of a stock market index (Brealey et al., 2006).

**Financial leverage:** The use of debt in order to increase the expected return on equity, thereby accentuating the variations in profits (Brealey et al., 2006).

**Hedging:** When, in order to reduce risk, an investor buys a security and sells another at the same time (Brealey et al., 2006). A perfect hedge produces a riskless portfolio.

**Market maker:** A bank or stockbroker that takes the responsibility for setting continuous bid and ask quotations for options (Swedish Shareholders’ Association 2009).

**Short sale:** The sale of a security that the investor does not own (Brealey et al., 2006). The purpose is to buy back the security from the market sometime in the future at a lower price (Swedish Shareholders’ Association 2009).

**Subscription right:** Security that gives the investor the right to buy stocks at a new issue (Swedish Shareholders’ Association 2009).

**Systematic risk:** Market risk (Brealey et al., 2006). The risk that the entire market will perform poorly (Swedish Shareholders’ Association 2009).

**Turbo warrant:** A warrant with predetermined knock-out values (Handelsbanken 2009). If the price of the underlying asset falls below or rises above the knock-out values, the turbo warrant becomes worthless.

**Unregistered stocks:** Company shares that are not registered on the market (Swedish Shareholders’ Association 2009).

**Warrant:** A long option (Brealey et al., 2006). Warrants are tailored options that are issued by banks and stock brokers (Swedish Shareholders’ Association 2009). More detailed information can be found in appendix II.

**Spread:** The price difference between the bid and ask quotations made by a market maker (Brealey et al. 2006)
1. INTRODUCTION

In this first chapter the reader is guided into the subject of the thesis: the decision making of the financial services consumer, specifically when buying warrants. Apart from introducing the reader to this field of research, the background aims to give an introduction to warrants as a product as well as to the Swedish warrant market. The chapter furthermore introduces the research questions, the purpose, delimitations and interested parties of this thesis. In the end, the disposition of this thesis is presented.

1.1 BACKGROUND

A derivative is a word that has been frequently used during this last period of financial crisis and a few specific derivatives have to a great extent been blamed for causing the crisis (Swedish Shareholders’ Association, 2008). A recent study conducted by the Swedish Shareholders’ Association (2009) shows that six out of ten small savers feel more secure in using a bank that does not offer more complicated services such as options and warrants, two examples of a derivative instrument. According to this survey, many small savers have not until recently understood the risks that are associated with more complex financial instruments such as warrants. However, the majority of warrants were already in 2006 being traded by small savers (Swedish Financial Supervisory Authority, 2006). The Swedish Financial Supervisory Authority believes that this tendency led many small savers to make complaints regarding deficient information about risks and comparisons between warrants provided by the issuers. Still, the year of 2008 turned out to be a new record year for the trading of warrants in Sweden (Dagens industri, 2008). Moreover, a lower average amount of money invested per transaction indicates that even more small savers invested in warrants last year (Avanza Bank, 2009).

A warrant is defined as a long option, normally with an expiration date 18-24 months into the future. (Swedish Financial Supervisory Authority, 2006). It is an instrument that gives the holder the possibility, but not the obligation, to buy or sell a stock at a predetermined price at a predetermined time in the future. In practice, the gains and losses at the end of the period are settled between the two parties and the underlying stocks never change owners. The warrants are traded at the Stockholm Stock Exchange and the Nordic Growth Market AB (NGM). Since the introduction in 1995, the turnover in the warrant market has experienced large variations, but has shown an increase during the last few years. Most transactions with warrants are done with a pure speculative motive (NDX, 2009), and because of the potential gains and the risk of warrants, they are used to “spice up” the portfolio of the investor.
Investors are interested in warrants because of the leverage that constitutes a great upside potential. Compared to many other financial instruments, the leverage of warrants gives the investor the possibility of making large earnings with a small deposit. For example, on the 27th of April this year the Eniro stock increased with 57 % (Dagens industri, 2009). On the same day, the value of a warrant issued by Commerzbank with the Eniro stock as the underlying asset increased with 950 %. On the 2nd of April, also this year, a warrant issued by Handelsbanken on the Autoliv stock rose with 1.900 % (Ibid). Nonetheless, this leverage is at the same time the largest contributor to the risk of the instrument since it also works in the other direction. By multiplying a decrease in the value of the underlying asset, the leverage quickly contributes to making the warrant worthless. (See Appendix II for more information about warrants)

Financial products such as warrants imply a significant purchase decision for the customer, and a poor decision can have severe consequences for the customer (Harrison, 2003). In today’s financial markets, the consumers are faced with complex products and an increasing assortment of services from a variety of financial institutions. Additionally, they are faced with a volatile marketplace. Harrison explains that this leads to uncertainty in the consumer’s decision. Under these circumstances, trying to explain and describe decision making in the context of a financial product becomes both challenging and intriguing.

Consumer behavior is defined as “... the behavior that consumers display in searching for, purchasing, using, evaluating and disposing of products and services that they expect will satisfy their needs” (Kanuk and Schiffmann, 2004:473). A large part of this field of study focuses on how individuals make decisions. The activities that occur when making decisions are presented in the so called consumer decision process model. The traditional consumer decision process model contains seven major stages that the consumer passes through when making a purchase decision: need recognition, search for information, pre-purchase evaluation, purchase, consumption, post-consumption evaluation and divestment (see chapter 3 for further information). In the traditional decision process the consumer is assumed to be rational (Harrison, 2003). Rationality implies that the consumers assess all alternatives available and that they, given the available information, make optimal choices in order to reach their objectives (The Royal Swedish Academy of Sciences, 2009). However, recent studies show that this might not be true when it comes to financial products (Ibid). Among others Cui (2007), claims that consumer behavior in banking differs from that of other industries. He claims that it might be the factors of uncertainty and involvement of financial products that cause the decision process to differ.
1.2 PROBLEM DISCUSSION

Decision making is nowadays often seen as deviating from the traditional assumptions of economic behavior (The Royal Swedish Academy of Sciences, 2002). The common assumptions are that the economic individual is completely motivated by self-interest and material incentives while at the same time able to make rational decisions. These are the characteristics of the homo œconomicus, the economic man.

According to traditional economic theory, the homo œconomicus acts to achieve the highest wellbeing, or utility, for himself given the information and opportunities at hand (The Royal Swedish Academy of Sciences, 2002). The goals need however not to be rational, but are reached to the greatest extent possible while at minimal cost. Although, following the ideas of bounded rationality by made Simon (1956), the individual does not always seek the optimal alternative, but rather a satisfactory one.

Today’s research has to a great extent shifted towards being based on a combination of economics and cognitive psychology, a research area called behavioral economics (The Royal Swedish Academy of Sciences, 2002). The basic assumptions that underlie many models of consumer decision making are incorporated with more realistic and detailed assumptions about the consumer behavior and additionally consider factors such as emotions and attitudes (Pindyck and Rubinfeld, 2005). Empirical findings indicate that many decisions under uncertainty, where it is impossible to predict the future outcome, are not in line with the assumptions of homo œconomicus (The Royal Swedish Academy of Sciences, 2002). However, if these deviations from rationality and self-interest are small and idiosyncratic, traditional economic theory can quite accurately predict the decision making of many individuals. On the other hand, if these deviations are systematic, a revision of economic theory would be necessary.

Especially models on consumer behavior are based on the assumptions of rationality and self-interest. Among others Kahneman and Tversky (1979) found that the decision making under uncertainty systematically deviates from these assumptions.

Warrants fall under the category of uncertain and complex products. It is therefore of value to investigate and describe how individuals make a purchase decision. The lack of information about warrant buyers and their decision making process is a problem observed at Swedbank, which made the authors aware of the situation. Swedbank believes that having more information about
individuals that buy warrants will enable them to communicate more efficiently with these consumers.

A client group of increasing interest is that of young investors between 20 and 30 years of age, who constitutes the future clients for Swedbank. The young investors studied for this thesis is by no means homogenous, but still have some common features. Among other things, the investors have a financial interest and have some connection to the financial associations or societies at their universities. They have also at least once bought warrants. They appear less risk averse than other people their age and they seek excitement. Based on the problem discussion above, the following research questions were developed.

1.3 RESEARCH QUESTIONS

How can the decision making under uncertainty and complexity be described when young investors buy warrants?

Both individual differences as well as environmental influences shape the decision making of consumers (Blackwell et al., 2001:77). Motivation, involvement, knowledge, attitudes, personality, and lifestyle are examples of factors that affect the decision making. It therefore becomes necessary to determine:

- What are the main characteristics of the young investors that are involved and interested in buying warrants?

The traditional theories on consumer behavior date back from the 1960s and concern physical goods (Harrison, 2003). Since this thesis investigates warrants, which is a financial product, as well as focuses on young investors, it is of interest to investigate;

- What differentiates the decision process of buying warrants, which is a financial product, from the traditional consumer decision making process?

1.4 PURPOSE

With a theoretical basis in the traditional consumer decision process, the purpose of this thesis is to examine and describe the decision making of young investors that buy warrants.
1.5 DELIMITATIONS

The thesis is delimited to the Swedish warrant market and will not consider the possibility of investing in warrants in foreign financial markets. The study will only contain people that are already interested in and who have at least once traded with warrants. The thesis will try to depict decision making of young investors when buying warrants today, even though their values and decision making process might change over time and in different stages of life.

1.6 TARGET GROUP

The target group of the thesis is Swedbank, which made the authors aware of the current problem concerning lack of knowledge about warrant buyers. Even though Swedbank is the primary target group, the thesis may also be of interest to other banks and financial institutes issuing or providing warrants or other derivative instruments to clients. The thesis may also be of use to financial institutes who are interested in the decision making of the financial customer. Additionally, the thesis is of interest to other students interested in marketing, consumer behavior and/or finance.
Chapter 1: Introduction
The background, research questions and purpose of the thesis are presented

Chapter 2: Methodology
The research approach, data collection and quality of the research are discussed

Chapter 3: Theoretical framework
The authors’ and the study’s theoretical framework on decision making and the decision process as well as behavioral economics are explained

Chapter 4: Empirical framework
The empirical findings obtained by conducting an Internet survey are presented.

Chapter 5: Analysis
The empirical findings are analyzed with the help of the theories presented in the framework

Chapter 6: Conclusion
The conclusion of the study is derived from analysing the empirical findings. The research questions of the thesis are answered

Chapter 7: Discussion
A discussion of opinions and recommendations of the authors is given to companies that provide these services and/or that are interested in young investors

Chapter 8: Further research
Some suggestions for further research is given

FIGURE 1: DISPOSITION OF THE THESIS
2. METHODOLOGY

In this chapter of the thesis the reader is given an insight into how the research study was conducted. Parting from an abstract and general level, the research philosophy and research approach when performing the study are described. Based on this foundation the method and realization of the research, as well as the motives for these choices, are discussed. The chapter ends with a summary containing a model that visualizes the chosen method.

2.1 RESEARCH PHILOSOPHY

Research philosophy considers the assumptions that the researchers have regarding reality and their opinion about what true knowledge is (Björklund and Paulsson, 2003:64-65). It also considers the assumptions of how new knowledge is created, how information should be gathered, and how it should be analyzed. Within the field of research philosophy there are two dominating, and opposite, approaches: the hermeneutic and the positivistic approach. In accordance with the research questions of this study, the aim is partly to add new knowledge about young investors’ decision making for warrants to the existing knowledge of general decision making and decision making of complex financial services. The authors of this study hope to depict common features among young investors that buy warrants, thereby creating a profile for their decision process. In this sense, the point of departure has a positivistic approach which is based on the conviction that there are general regularities that explain behavioral patterns in society (Jacobsen, 2002:31).

As opposed to the positivistic approach, the authors of this study do not believe that these common features must always be valid in time and space, something that is supported by the hermeneutic approach (Jacobsen, 2002:33). Since the purpose of this thesis is to describe decision making of young investors when buying warrants, understanding how they think and act when they buy warrants becomes vital. Therefore, the collected data will be analyzed based on the authors’ perception and interpretation. In contrast to the positivistic approach, the aim is not to explain behavior but to create an understanding of behavior (Bryman and Bell, 2005:29).
2.2 RESEARCH APPROACH

2.2.1 INDUCTIVE, DEDUCTIVE OR ABDICATIVE APPROACH

The problem and purpose of this study has been observed and derived from reality. Thus, the choice of problem and the initiation of this thesis part from a problem observed at Swedbank, and the study can therefore, according to Bryman and Bell (2005:23-25), be classified as having an inductive research approach. As a consequence, the researchers collected empirical information before consulting existing theories.

During the development of the thesis the research has however shifted in its approach. Even though the problem is based on empirical observations, theories and existing literature on decision making were consulted in order to formulate the research questions and to create a survey for the empirical study. This coincides more with a deductive approach, where the research parts from theories and the researchers try to draw conclusions and verify the theories by observing reality (Bryman and Bell, 2005:23). To conclude, there has therefore been a shift between these two different approaches. Combining and shifting between induction and deduction is called an abdicative approach (Björklund and Paulsson, 2003:62), and is therefore the approach that best describes this study.

2.2.2 QUANTITATIVE AND QUALITATIVE RESEARCH

What methods and techniques that are most suitable for a research study depends on the research problem and purpose (Ghauri and Grønhaug, 2005:109). The purpose of this study is to examine and describe the decision process for young investors when buying warrants. Hence, the study is partly seeking to uncover a person’s experiences and opinions concerning warrants. This is a financial product and a decision process about which there, in general, is little information and knowledge. Due to this fact, a qualitative study, which is more focused on words rather than on numbers, is suggested (Bryman and Bell, 2005:40). A qualitative study concentrates on investigating and interpreting the social reality, often through observations or interviews.

One intermediate goal of this thesis includes investigating the differences between the traditional consumer decision process and the decision process for warrants. In this sense, the traditional decision process is tested in accordance with a quantitative research method. Numerical data that is comparable between two variables was therefore collected in order to be able to depict and contrast
the decision making of the young investors. A quantitative study that focuses on numbers and measurements of variables is more appropriate when dealing with and comparing information collected from a larger number of individuals (Bryman and Bell, 2005:297). The quantitative study therefore focuses more on structured methods such as surveys and structured interviews.

The empirical investigation of this report was realized using an Internet survey. The survey contained both open-ended questions and closed questions. Open-ended questions were used since they capture the individuals’ values and opinions in their own words as described by Bryman and Bell (2005:177). The use of open-ended questions makes the survey more open to unexpected aspects and gives the study a more qualitative approach (Jacobsen, 2002:135). However, the majority of the questions in the survey were closed with predefined answers. This was seen as necessary in order to better measure and compare the answers between the individuals, something that is in accordance with a quantitative study. To conclude, the survey can, according to Jacobsen (2002:139), be classified as having a mixed qualitative and quantitative method. As supported by Ghauri and Grønhaug (2005:109) the two methods are not mutually exclusive. Furthermore, a mixed research method is ideal because it helps avoid the disadvantages of using either a qualitative or a quantitative approach (Jacobsen 2002:139-154).

2.3. DATA COLLECTION

2.3.1 INFORMATION SOURCES: PRIMARY AND SECONDARY DATA

In order to answer the research questions both primary and secondary data were gathered. Björklund and Paulsson (2003:74, 67) define primary data as the original research data that is collected by the researchers in order to meet the specific objectives of the study. This means that the collected data will be tailored for the research questions of the study (Jacobsen, 2002:152). Secondary data is on the other hand defined as data gathered for some purpose other than the research objectives of one particular study. For this study, primary data was gathered by conducting an Internet survey. The secondary data was principally used in the form of literature and articles within the field of consumer decision making, behavioral economics and complexity and uncertainty of financial services. It is this secondary data collection that also provided clues and direction for the primary research. The chosen articles and books have been found using business databases provided by the library at Linköping University, for example Business Source Premier. Key words when searching for relevant information were: Decision making, decision making of financial services and
for young investors, marketing financial products/services, consumer decision process, behavioral finance/economics and decision making under uncertainty.

### 2.3.2 SURVEY RESEARCH

The research about consumer behavior is an applied science inspired by economics, psychology, sociology, anthropology, and other research areas (Blackwell et al., 2001:21). Studying consumer behavior is complex since it involves trying to investigate and understand how a person thinks. There is no single solution on how to best research consumer behavior, including decision making, effectively although the methods can be classified into three different areas: observational, interviews and/or surveys and experimentation (Ibid). Following the definition made by Ghauri and Grønhaug (2005:124) a survey is a method of data collection that uses questionnaires for recording the behavior of respondents. The survey is an effective technique for capturing opinions, attitudes and descriptions. An Internet survey was in this case found to be the most appropriate option for answering the research questions of the thesis. The motive for choosing this instrument is mainly the fact that young investors are dispersed geographically. Moreover, most young investors of today are familiar with using computers and the Internet. Time constraints and the budget of the research have also influenced this choice. The main advantages of a survey are that it is cheap, fast to administrate and there is no interviewer bias, that is, the respondents are to a lower degree influenced by the authors of the study since they do not meet in person (Bryman and Bell, 2005:162). Additionally, a survey research method allows for the questions to be easily compared between respondents. Another advantage in this case was that it could provide anonymity to the respondents, and may have encouraged the respondents to be more honest about their private financial position and values. A disadvantage of using a survey can on the other hand be that the respondents can misinterpret the questions (Bryman and Bell, 2005:163). Since the respondents were anonymous it was not possible to ask follow-up questions or confirm the answers. However, in order to minimize misinterpretations, short help texts were inserted together with some of the questions. Another problem with surveys, according to Kanuk and Schiffman (2000:22), is that the sample tends to be self-selected, which implies that the survey only reflects the opinions of the young investors that have chosen themselves to participate and to answer the survey. It is probable that there are some differences between those that chose to participate in the survey and those that did not.

The survey was conducted in a manner that tried to exclude other factors that can influence the respondents. Even though the thesis was written as an assignment for Swedbank, the survey was
conducted without the respondents knowing this, and the questions where not specifically developed for Swedbank’s customers. Swedbank sponsored the survey anonymously with ten USB-memory sticks, which were used as a stimulus to increase the response rate. The respondents could voluntarily give their e-mail addresses and thereby participate in the lottery for the memory sticks.

Before administrating the survey, two relatively open interviews were made in order to further investigate interesting aspects within the area of decision making for warrants. Interviews, where a few specific themes for discussion are prepared, are called semi-structured interviews (Bryman and Bell, 2005:363). The interviews were conducted with the motive of testing the relevance of various themes and questions for the final survey. The interviews were also necessary for gaining further insight into the process and experience of buying warrants, which is an unexplored area for the authors of the study, and for creating an understanding for the different response options to include in the closed questions. The interviews were conducted in person in a secluded room at the University. The two interviewees were students at Linköping University and members of the financial association at the university.

Based on the feedback from the interviews, a survey was developed. Two test pilots were then used for testing the questions. The survey was also examined by our contact at Swedbank as well as by representatives from Swedbank Securities. In this way, obvious faults and misinterpretations of the questions were revealed. The survey was constructed by, in total, 25 questions, of which six were open-ended questions, and the survey was estimated to take 10 minutes to fill out. As discussed by Bryman and Bell (2005:163) it is important not to have too many open-ended questions, with the respondents filling out the blanks. Usually this may discourage the respondents and further increase the risk of receiving responses that are only partly answered. Nonetheless, six open-ended questions were included in order to cover questions where it was not possible for the authors of the study to specify all the expected answers in a multiple choice manner.

The questions of the Internet survey can be seen in appendix I. The first four questions of the survey have a more formal character and consist of basic information about the respondents. The second research question concerning the characteristics of the young investors that buy warrants are partly answered by questions 5 to 9 in the survey. The questions aim to map the buyer experience/knowledge, involvement and general buying behavior of the respondents. Questions 10 to 21 were formulated as to investigate the different stages (need, search for information, pre-purchase evaluation of alternatives, purchase and post-consumption evaluation) in the traditional decision process model in order to be able to investigate how it can differ for warrants, in accordance
with the third research question. Question 22 of the survey was included since the initial interviews indicated that the young warrant investors might to some degree have a hidden agenda as to why they buy warrants, an aspect that is connected to social status. This question was connected to the third research question about investigating the need for buying warrants. The last three questions of the survey concern risk, (questions 23, 24 and 25) and were considered essential components of decision making under uncertainty and help investigate the main question as well as the second problem question.

2.3.3 SAMPLE SELECTION

Since it is practically impossible to study all young investors that buy warrants, sampling is adequate. This means that only a certain number of individuals of the total population of young investors that buy warrants are studied (Bryman and Bell, 2003:110).

Various problems of getting in touch with and finding warrant traders arose at the initiation of the study. Since only a small proportion of investors buy warrants, various options to find them were investigated. The idea and possibility of sending an Internet survey to different financial associations and groups at Swedish universities arose through a personal contact of the authors of the study, a person who is a member of the financial association at Linköping University. Since this person was part of the financial association, it became clear to the authors that other warrant investors could be found through this channel. E-mails were therefore sent to financial groups at six different universities asking whether they knew if their members had any experience from buying warrants. After satisfactory responses from four of these groups, an Internet survey was constructed and sent to the already contacted financial societies and groups as well as to several more universities. The population of the study are young investors that have at least once bought warrants, they are between 20 and 30 years of age, and have some connection to the financial associations at their universities. Even though the number of members of the financial groups was known, finding out the number of warrant investors, both within and outside the financial associations would require extensive investigation. The size of the population is therefore unknown, and for that reason, it was necessary to accept the fact that a perfect sample test was not possible.

To be able to generalize the results from the sample to the entire population, the sample has to be representative, that is, valid for the population (see Validity 2.4.1). Due to the fact that the size of the population for this study was unknown, the sample is a non-probability sample, and the results
cannot be generalized. The selected sample can be defined as a convenience sample, that is, the researchers selected the most accessible population members from which information was collected (Bryman and Bell, 2003:124-126). Even though a convenience sample is not ideal regarding the validity of the study, the associations and groups were a good opportunity of finding young investors that trade warrants. According to Bryman and Bell (2003:126), a convenience sample is adequate when an opportunity like this arises. Moreover, within the research area of economics and management, the convenience sample has furthermore been given a more prominent role compared to probability samples.

2.3.4 ADMINISTRATION AND ANALYSIS OF THE SURVEY

An Internet based survey tool provided by Google Docs was used for creating and distributing the survey. This tool is advantageous when collecting a larger amount of responses. In Google Docs a form was easily created and free of charge. Another advantage that considerably facilitated the analysis of the empirical findings was the possibility to continuously study the response rate as well as the gathered information in charts and graphs while still accepting answers. Furthermore, the program illustrates the answers and response rate to every question individually in a summary and also provides the possibility to look deeper into one individual respondent’s answers. In order to investigate if there were any significant differences and relationships between different variables, the answers of different questions has further been analyzed using bivariable analysis. The bivariable analysis is useful for showing whether two variables are associated with each other (Bryman and Bell, 2003:261, 263). The strength of the association is measured by correlation although the pattern of the association can be seen in a scatterplot. The correlation ranges between -1 (perfect negative association) and 1 (perfect positive association). If there is no association, the correlation is 0 (Ibid).

The survey was distributed by sending a hyperlink to the presidents of the financial associations who in turn forwarded the link to their members. Among the obtained answers there were respondents that had not filled out the complete survey. The potential falling off was sought to be reduced by sending reminders, once or twice. Also, e-mails were sent to other people within the boards of each association, thereby trying to increase the participation of each association. 72% (21 persons) of the respondents had filled out all the questions. Among the respondents that did not answer all questions, the open-ended questions about risk aversion, lifestyle, difference between warrants and satisfaction with warrants were the almost exclusively the ones that were passed over. All of the 29
respondents’ answers were used as data in the empirical findings, even though respondents were excluded from analysis on questions that they had not answered.

## 2.4 THE QUALITY OF THE RESEARCH

According to Björklund and Paulsson (2003:59) there are three measurements that can be seen as measuring the credibility and accuracy of a study: Validity, reliability, and objectivity. A study should strive towards achieving as high a degree of validity, reliability and objectivity as possible.

### 2.4.1 VALIDITY

As argued by Ghauri and Grønhaug (2005:80), researchers strive to achieve valid measurements when measuring something. “*Validity refers to the extent to which a test measures what we actually wish to measure*” (Blumberg *et al.*, 2005:379). Usually, the concept of validity is divided into two parts: internal validity and external validity.

*Internal validity* refers to the ability of the research instrument to measure what it is intended to do (Blumberg *et al.*, 2005:380). The internal validity consists of parameters concerning how the study was performed, for example if the utilized research instrument covers the research questions, and if the sample is representative for the population. The questions in the survey and their connections to the research questions of the thesis are described in section 2.3.3 Survey research. The survey was partly constructed in accordance with the steps in the traditional decision process, and partly with the aim of getting information about the characteristics of young investors. The research questions were therefore the focus when constructing the survey and ensured that the survey could provide answers to the research questions. The validity of the study is further increased by the fact that there is no reason to believe that a perfect probability sample would give completely different information from the same population than the results of this study. Investors not part of any financial association were also able to participate in the survey. This increased the probability that the obtained information is also valid for other investors outside financial associations at universities, thereby increasing the internal validity.

*The external validity* refers to the collected information’s ability to be generalized across people, settings and times (Jacobsen 2002:266). External validity partly considers generalizing data from a smaller sample into a more theoretical level, without considering the population as a whole. The sample in this study is a non-probability sample, which limits the possibility of making generalizations
about the totality of the population; a variable that also is unknown. Instead, the emphasis lies on generalizing about the theories of decision making from the results of the warrant investors that participated. By having a research approach that is a mix between a qualitative and a quantitative approach, it is possible to take advantage of the qualitative approach in order to generalize the information into a more theoretical level (Jacobsen 2002:266 ff). The results aim to contribute and complement the already existing theories on decision making for financial services. However, the results may also give indications about the investors’ decision making of other products, similar to warrants, which are characterized by uncertainty and complexity.

2.4.2 RELIABILITY

A study is considered to have high reliability if the same questions are asked of a similar sample and produce the same findings (Kanuk and Schiffman 2000:22). In other words, the results are considered reliable if they supply a consistent result over time. Furthermore, reliability includes the reliability of the measurement process (Blumberg et al., 2005:389). By describing the method and methodology used, the authors of this study hope to enable other researchers to perform a similar study. Moreover, as argued by Jacobsen (2002:269), reliability is affected by the influence that the researchers and the respondents have on each other. For this study, the researchers and respondents never met and so the reliability of the study is thereby increased.

To repeat this investigation with the same respondents and survey questions most likely would not produce the same results. Subjectivity is always an issue when it comes to values and opinions. Also, the opinions, the knowledge, and the use of warrants by the respondents will most likely change in the future. The investigation for this thesis is a snapshot of these people in this stage and moment of their lives. In this sense, the reliability of the study is negatively affected.

2.4.3 OBJECTIVITY

Objectivity refers to the degree to which the study is influenced by the values of the researchers. (Björklund and Paulsson, 2003:61). By clearly motivating and accounting for the different choices during the realization of the study, the reader is given the possibility to judge quality of the research. In this way the objectivity of the study increases. Furthermore, the authors of this study did not have any experience with buying warrants before conducting the study and therefore no preconceived values that affected the study. However, the authors selected and presented information that was
found relevant for this thesis and the objectivity is therefore affected. On the other hand, even though results can be interpreted in different ways, the results contribute to the overall understanding of consumer decision making for warrants.

2.4.4 SOURCE CRITICISM

In relation to a given purpose a source can be more or less valid, reliable and relevant. It is important that the authors of any thesis critically evaluate the sources used for a study (Jacobsen 2002:186). For this study the authors have performed an Internet survey for collecting primary data. Criticisms towards using surveys to determine consumer behavior involves the fact that many respondents might give the impression of acting in a certain way, but in real life act in another (Blackwell et al., 2001:22). Nonetheless, a survey is considered to give indications of consumer behavior in a relevant way (Ibid). Furthermore, with reservation for possible errors in the translation, the respondents’ answers and opinions were cited literally.

As already mentioned, the research of consumer behavior is an applied science inspired by many disciplines such as economics, psychology and sociology. (Blackwell et al., 2001:21) Due to this fact the literature used for this thesis discusses decision making in a general way and from a multidisciplinary point of view. Original sources were continuously searched for as much as possible. Even though some of the literature illustrates decision making in different contexts than the context of this thesis, the theories are developed by well-recognized authors within the field of decision making. Also, the literature about behavioral economics that is discussed in this thesis is primarily developed by Nobel laureates. The more traditional theories in the thesis are complemented with recent and scientifically recognized articles from the 21st century.
The model below visualizes the method used for this thesis:

![Diagram visualizing the method for the thesis](image)

**FIGUR 2: VISUALIZATION OF THE METHOD FOR THE THESIS**

The starting point for this thesis was an information need at Swedbank, who are interested in more information about investors that buy warrants. Since the problem was at first vague and undefined, the authors performed literature studies and semi-structured interviews in order to understand and define the research problem. The research can therefore be described as abdicative, since the subject of this thesis is based on an empirical problem as well as based on existing theories on the subject. Primary data was further collected through an Internet survey. The study is defined as a mixed quantitative and qualitative study, since it contains a survey with both open-ended and closed questions with predefined answers. The authors further consulted additional theories for a deeper understanding of the studied problem and for interpreting the results of the survey that resulted in an empirical and theoretical framework. The outcome is an analysis model used that is used for analyzing the results and drawing conclusions from the empirical findings with the help of the theoretical framework.
3. THEORETICAL FRAMEWORK

This chapter presents the theoretical framework that is used in order to explain the empirical findings. To begin with, the theories in the framework are motivated. The different stages of the traditional consumer decision process model are thereafter discussed. Also, the reader is provided with information about decision making under uncertainty and complexity. The chapter ends with a summary of the connection between the theories.

3.1 SELECTION OF THEORIES

The purpose of this thesis is to “examine and describe the decision making of young investors that buy warrants” and the traditional consumer decision process model will serve as a basis for this purpose (p.10 of the thesis). Consequently, this chapter starts with describing the stages of this model. The majority of the consumer decision models were developed in the late 1960s (Harrison, 2000:57-58). The stages in the Blackwell-Miniard-Engel model were chosen as a starting point due to its frequent use and citation in different books and articles. The stages are complemented with additional discussions from other traditionally based authors as well as discussions from contemporary authors that account for decision making in the context of financial services. Secondly, concepts and theories about uncertainty and complexity, factors that influence the decision to buy warrants, are described. Finally, ideas within behavioral economics that challenge the basic assumptions that underlie the traditional consumer decision process model are presented. The concepts and theories have all been chosen with the attainment of the purpose in mind.

3.2 THE CONSUMER DECISION PROCESS MODEL

The consumer decision process (CDP) represents “a roadmap of consumers’ minds that marketers and managers can use to help guide product mix, communication, and sales strategies” (Blackwell et al., 2001:71).

The original model shows how the consumers pass through seven stages in their decision making process. In this study, the stage of consumption has been eliminated since warrants are simultaneously produced and consumed. The stage of divestment has also been excluded since there is no need for disposal or recycling after consumption. The stages will be further developed below.

FIGUR 3: OWN ADAPTION OF THE CONSUMER DECISION PROCESS MODEL
3.2.1 NEED RECOGNITION

Blackwell et al., (2001:72) state that need recognition, or problem recognition, is the first stage in any decision process. Antonides and van Raaij (1998:169) explain that the need for something results from a shortage and that a need is motivating because it induces an individual to reduce this shortage. This reasoning is similar to that Blackwell et al. (2001:72) as well as Hoyer and MacInnis (2007:195) who assert that the recognition of a need occurs when the individual senses a difference between the actual state of affairs and an ideal state or goal. Furthermore, Antonides and van Raaij (1998:164) emphasize that needs should be considered separate from wants, wishes and desires. Needs are general, while wants and wishes are more closely related to a specific item. This can be exemplified by a need or desire for a pleasant standard of living when retired (Harrison, 2002:54). Harrison explains that this goal might be stimulated by a feeling of financial insecurity about the future. Achieving the goal can for example be done by a financial service in the form of a personal pension or of a savings account. The financial service in this case represents the item connected to wants and wishes. The difference in the expected standard of living and the desired standard of living causes a tension and motivates the consumer to act.

According to Blackwell et al., (2001:72) need recognition of the consumer is affected by the memory of the consumer, environmental influences as well as individual differences, as shown in the figure below:

A company needs to monitor the consumer trends and changes because as the environmental influences and individual differences alter, so do the needs and problems of the consumer (Blackwell et al., 2001:73). The authors claim that the environmental influences noted in Figure 3 are most likely to influence the way consumers look at problems. Moreover, they also stress that the desired states of the consumers also change as they pass through different stages in life. In other words, the needs
and desires for different products change. For example, needs appear to change with age and desires increase with expectations of a rising income.

For the financial consumer, researchers have been able to identify five basic needs (Harrison, 2000:55). These are cash accessibility, asset security, money transfer, deferred payment, and financial advice. Cui (2007) however states that the consumer in the need recognition stage of the decision process does not necessarily recognize clear needs. Cui adds that the consumer is able to identify a need only for the simplest financial services. When the consumers are faced with new financial services their needs are “yet ambiguous and uncertain” (Cui, 2007). The author also stresses that the financial needs can change and develop into needs for other products than the original ones.

### 3.2.2 SEARCH FOR INFORMATION

After need recognition, the consumer usually, according to Hoyer and MacInnis (2007:198), begins to search for and process information about products that can satisfy the need. As classified by Blackwell et al., (2001:73-76) the consumer can receive information and knowledge partly from the own memory and partly from people and organizations in the external environment. The authors claim that sometimes the information search can be classified as passive. The consumer is then consciously or unconsciously receptive to the signals and messages of the market. In other occasions the search is more active and the consumer engages in a search for information on for example the Internet or visits retailers. Furthermore, the sources of information can, according to Blackwell et al. (2001:73-76), be either marketer-dominated or nonmarketer-dominated. The authors refer to marketer-dominated information sources as the information provided by a company in the form of for example advertising, web sites et cetera. Nonmarketer-dominated sources refer to sources that a company has little control over, such as friends, family and media.

The search for information can also be either internal or external (Blackwell et al., 2001:106-107). Blackwell et al. argue that consumers that have recognized a need start their search internally. This internal search involves retrieving previous knowledge, feelings, and past experiences from memory. The authors explain that first-time buyers obviously do not have the necessary information for making a decision based in internal search. The experienced buyer, on the other hand, might not need to undertake any further external search before making a decision. In the internal search process the individual’s “top of mind” awareness is important and decisive.
The external search is realized outside the consumer’s existing knowledge and experience (Antonides and van Raaij, 1998:252). According to Blackwell et al. (2001:107) the external search consists of gathering of information from friends, family and the marketplace. This search process can be performed as a pre-purchase search, which is motivated by a need recognition, or an ongoing search, that is performed on a regular basis in order to build a database of information for future purchase needs. Hoyer and MacInnis (2007:206) categorize the external sources of information into five different channels: retailer search (visit or call to the company), media search (information from advertising, homepages et cetera), interpersonal search (advice from friends, family, peers or other users), independent search (independent sources such as books, government pamphlets, magazines) and experiential search (use of samples trials or experiencing the product online).

The search process is almost always not optimal (Antonides and van Raaij, 1998:252). Often, the consumers settle for a satisfactory option, that is, a solution that is considered to be good enough. According to Harrison (2003), the extent to which the consumer searches for external information depends on a number of factors. These factors include earlier experiences of the product at hand, the complexity of the product, and the degree of uncertainty by the consumer regarding the product. When it comes to financial services, the degree of uncertainty and complexity is almost always high. Therefore, Harrison claims that it is crucial for the customer to engage in an extensive external search in order to reduce the risk of the purchase. On the other hand, Harrison adds that the search process for financial products may be of less importance since it is difficult for the consumer to evaluate the consequences, the outcome, of the choice. Cui (2003) claims that the uncertainty of financial services may exist because the consumers find the information too intricate, redundant and contradictory.

3.2.3 PRE-PURCHASE EVALUATION OF ALTERNATIVES

After the consumers have searched for information they have most likely identified at least a few appealing alternatives (Blackwell, 2001:76-78). In this stage of the decision process the consumer is occupied with comparing and contrasting the different alternatives. Every consumer has their own “evaluative criteria”, meaning that they have different attributes that they value when comparing products. As in the stages of need recognition, both individual and environmental factors influence the evaluation of alternatives (See Figure 4). When a consumer evaluates product alternatives, evaluation does not however mean that the consumer makes a decision to buy any of them (Hoyer and MacInnis, 2007:220). A consumer can make a judgment about a product or a company without deciding to make a purchase.
According to Antonides and van Raaij (1998:258), a lot of consumers are more prepared to stick to a decision they have made if it is based on a lot of information, even though they may not have understood the information they have gathered, nor have they used the information they have understood to its fullest extent. Antonides and van Raaij explain that consumers that have made their decision based on a lot of information generally believe that they have made the right one. The danger however lies in the phenomenon called “information overload”. Research has shown that consumers increasingly trust their choice as the amount of information increases, while the quality of the decision only increases to a certain extent (Ibid).

The tendency of traditional consumer decision models has been that the consumer gathers information about alternative products and suppliers and from these products the consumer chooses a smaller number of products (Harrison, 2003). It is from this “evoked set” of products that the final decision to purchase will be made. Furthermore, the decision is assumed to be based on a rational reasoning and to be an informed choice. The author claims that this evoked set of alternatives for financial services often is smaller than for other tangible goods due to difficulties of finding relevant information. If, for example, the information comes from a personal source, for example a friend or family member, the alternatives from which the consumer chooses might come from only one financial institution. Furthermore, many consumers still relate certain services with certain financial institutions, thereby limiting the possibilities of these institutions to sell other products (Harrison, 2000:60).

When comparing financial products, the consumer is faced with greater difficulties than with physical goods (Harrison, 2003). With physical goods the consumer is able to immediately compare attributes in order to determine the quality of the product. Because of the longevity and intangibility of services it is more difficult to get cues about the service quality. These characteristics make consumers turn to finding other cues about the service quality, for example from the impression of the physical facilities and the contact with the bank’s staff. Furthermore, the reputation and the history of the bank matters (Harrison, 2000). Generally speaking, Harrison adds that consumers seek to find cues which indicate that the financial institution will honor its obligations. Besides from size, brand, and history of banks, Cui (2003) claims that the Internet is of great assistance when comparing financial services quality. The consumer will assume comparison criteria for the banks’ homepages that include safety, convenience, availability, and cost.

Because of mentioned difficulties of comparing many financial services, it is suggested that the consumer’s decision process differs from the traditional ones and that the majority of the evaluation
is made after the purchase (Harrison, 2003). Furthermore, the limitation of pre-purchase evaluation possibilities and the risks associated with a financial purchase decision are believed to have resulted in many loyal customers (Harrison, 2000:61). However, Harrison argues, this view of the financial customer has changed into being one that considers inertia as the main reason for this “loyal” behavior towards financial institutions.

### 3.2.4 PURCHASE

The fourth stage in the decision process is the purchase. According to Blackwell *et al.*, (2001:127) the result of the pre-purchase evaluation stage can be either to buy now, not by at all or to postpone the purchase or decision. The purchase also involves where to buy and how to pay. The experience of purchasing that the consumer gets will enhance or change the needs of the next decision process (Cui 2003). As Schiffman and Kanuk (2000:456) point out, there are three classifications of purchases and behaviors: trial purchases (exploratory phase), repeat purchases and long-term commitment purchases.

### 3.2.5 POST-CONSUMPTION EVALUATION

As noted, the consumer decision process model does not end when a purchase has been made. Blackwell *et al.* (2001:80) explain that the consumer in the post-consumption evaluation stage evaluates the experience of using the product or service. The outcome of the evaluation is either satisfaction or dissatisfaction. Satisfaction in this context occurs when the consumer’s pre-purchase expectations are matched with the performance and use of the product or service. How the consumer uses the product is according to Blackwell *et al.* (2001:80) the most important determinant for satisfaction. The authors argue that a product can be good, but dissatisfaction can occur if consumers use the product in an inappropriate way. Antonides and van Raaij (1998:480, 485) discuss the problem of consumers not being able to form a realistic vision of the performance of a product due to its ambiguities. This ambiguity can be caused due to several factors: lack of experience with an existing product, the product is new on the market, the service is not physically present or the quality of the service varies continuously. Antonides and van Raaij (Ibid) furthermore stresses that customer satisfaction is either way very important since it influences future buying behavior of both the consumer and of others when the consumer discusses the purchase with people in the social environment.
Harrison (2000:61) states that the post-consumption stage is necessary for the consumer in order to build experience and knowledge about products and services. The author points out the difficulty that may exist when evaluating financial services. There may actually not have been a predetermined need that can be matched with the result in the first place. It may therefore be questionable if this leads to an unavoidable dissatisfaction for the consumer (Ibid). Furthermore, for many financial services, the consumer is evaluating the product before it has been consumed. Harrison gives the example of an investment plan that cannot really be evaluated until its maturity. However, the investor will perhaps have to consider re-investing in other securities before the original plan has matured. Also, there is a problem with customers not sure of what to expect from the service. They may also not have the knowledge or the experience to know how to evaluate. In several ways, it can be difficult to evaluate whether investment products have met the expectations. Therefore the consumer tends to make evaluations based on other features, discernible to them, such as delivery system and service from personnel. Many financial services contain tangible elements on which the service can more easily be judged or evaluated.

Another interesting feature in evaluating financial services is that of the participation of the consumer in the purchase decision (Harrison, 2000:61). Since the consumers participate in the service process they feel more responsible when something goes wrong, or does not go as they expected. Therefore, the evaluation will be different from evaluating for example physical goods where the blame often is placed on the product. The author also stresses that, within financial services, the success often depends on the information that the customer gives the financial advisor and the extent to which the consumer clearly can express its needs to the advisor.

### 3.3 CHARACTERISTICS OF FINANCIAL INSTRUMENTS

#### 3.3.1 COMPLEXITY OF FINANCIAL INSTRUMENTS

The financial services sector forms a part of the much larger service sector. Therefore, it is useful to be reminded of the characteristics of services in general. Primarily, services are considered to be intangible even though the majority of services are not completely intangible but are in fact supported by tangible, physical, elements (Shostack, 1977). The intangibility of services makes them more difficult to evaluate (Beckett, 2000). Services are also inseparable, i.e. they are generally consumed the same time as they are bought. The author adds that services are furthermore heterogeneous and there is therefore a great variation in quality between. They are also perishable, meaning that the supply and demand of services must be synchronized. The perishability appears
since it is often difficult to store services. Ultimately, Beckett emphasizes that the services consumer is considered to buy promises and therefore needs to trust the provider to follow through on those promises.

These main characteristics of services are factors that are valid for financial services as well, even if they are valid to different extents depending on the financial service in question. (Harrison, 2000) Besides from the above mentioned characteristics, financial services are more complex due to difficulties regarding the uncertainty of outcome, the transparency of performance, and difficulties with making comparisons.

Financial services are often difficult for consumers to understand and they find it hard to identify the development of an investment (Beckett, 2000). The problem of transparency concerns the information available to consumers and their ability to understand that information. The difficulty of transparency is also closely correlated with the difficulty of making comparisons. If an individual can not evaluate one investment, it naturally becomes difficult to compare two of them. Yet the problem of comparability primarily stems from a combination of long time periods and uncertainty of outcome. Beckett concludes by explaining that financial instruments are good examples of products where it is complicated to make comparative judgments since the outcome appears in the future and since the outcome more than often is uncertain.

3.3.2 DESCRIBING RISK/UNCERTAINTY

Uncertainty and risk are two concepts closely related. Uncertainty is, according to Knight (1921) defined as situations in which many future outcomes are possible and identifiable, but the likelihood (probabilities) of each future outcome is unknown. He continues with defining risk as situations in which it is possible to list all possible future outcomes but the likelihood of each outcome is known. In this thesis, risk and uncertainty are, in order to simplify the discussion, used interchangeably.

When making purchase decisions, consumers identify and select the product or service that best satisfies their need (Beckett, 2000:193). The author points out that the more a person is able to anticipate the outcome of the purchase, the lower the degree of uncertainty of making the choice and satisfying the need. Uncertainty in decision making is therefore affected by two things: the individuals’ cognitive ability as well as the availability of information. This means those consumers are faced with uncertainty when they do not have all the information necessary to assess’ future outcomes and do not know how to use the information (Hamberg, 2004:110)
3.3.3 REDUCING RISK

A lot of the choices that people make involve a considerable degree of uncertainty. (Pindyck and Rubinfeld, 2005:164) At times people also choose risky alternatives over less risky ones. A way of reducing the risk, which is especially important when investing in financial markets, is diversification. Diversification is defined as “a way of reducing risk by allocating resources to a variety of activities whose outcomes are not closely related” (Pindyck and Rubinfeld, 2005:165). Risk can thereby be reduced by having an investment portfolio consisting of several different stocks or by investing in different products, for example investing in both stock and mutual funds.

Furthermore, not all risk can be reduced by diversification. As explained by Brealey et al., (2005:162) the risk that potentially can be diversified is called unique risk. Unique risk is specific for a company or industry, and can therefore be avoided by investing in different companies and industries. Market risk, the authors’ points out, is on the other hand unavoidable. Market risk is a result of factors that affect all businesses, such as changes in consumer prices. This is why investors are all exposed to market uncertainties, independently of how many different stocks and products they hold.

3.3.4 PREFERENCES TOWARDS RISK

Financial theory involves two variables: risk and expected return (Hamberg, 2004:110). The association between the two variables is defined as positive. This implies that investments that have a high expected return also carry a higher risk. In order to describe how investors handle risk it is assumed that investors are: rational, that they seek the highest return possible (utility-maximization) and that they avoid unnecessary risk (Pindyck and Rubinfeld, 2005:173-179). Based on these assumptions three different preferences towards risk can be identified as illustrated in the figure below:

A. Convex (risk lover)  
B. Equal (risk neutral)  
C. Concave (risk aversion)

![Utility functions for different preferences of risk](image)

FIGURE 5: UTILITY FUNCTIONS FOR DIFFERENT PREFERENCES OF RISK (HAMBERG, 2004:113)
As shown in Figure 5, situation A describes the utility function of a person that is risk loving. This means that for every additional unit of wealth the utility of the additional unit increases more (Hamberg, 2004:113). This means that for a risk loving person the utility is greater than the expected wealth itself. This individual would prefer an uncertain income to a certain one (Pindyck and Rubinfeld, 2005:161). In situation B, a risk neutral utility function is depicted. In this case, the utility increases proportionally to the increase in the wealth (Ibid). Therefore, a risk neutral person is indifferent between a certain income and an uncertain income (Pindyck and Rubinfeld, 2005:161). Situation C depicts the situation of a risk avert person. Here, this individual’s marginal utility diminishes as income increases. In other words, for an additional unit of wealth the utility increases less than proportionately. A risk avert person prefer a certain income to a risky income with the same expected value.

3.4 BEHAVIORAL ECONOMICS

Behavioral economics brings together the knowledge of decision making within economic theory and cognitive psychology (The Royal Swedish Academy of Sciences, 2002). Within cognitive psychology, human behavior is considered to be a complex system that involves individuals’ perceptions, mental models, emotions, and attitudes. Today’s research on decision making within behavioral economics tries to explain and elaborate consumer decisions that are not well explained by the traditional models (Pindyck and Rubinfeld, 2005:179). This contemporary research has shown that an individual’s willingness to take risks is situation specific rather than characterized by non-changing preferences (Hamberg, 2004).

3.4.1 PROSPECT THEORY

Prospect theory by Kahneman and Tversky (1979) is prominent among theories on complex consumer decision making that put into question one of the foundations of the traditional decision making theories, namely rationality. The researchers argue that prospect theory describes actual behavior while earlier theories characterize rational behavior.

According to Kahneman and Tversky (1979), individuals are unable to completely analyze situations where there is a need for probabilistic and economic judgments. In their research, the authors found three main deviations from rationality. First, individuals tend to be more sensitive to relative changes rather than to absolute changes in wealth. People often have a changing individual reference level to which they evaluate outcomes and they are therefore not interested in the final values per se, but in
the changes in wealth relative their reference level. This reference level can however also be an aspiration level that individuals try to reach given their wealth at the moment. Second, Kahneman and Tversky confirmed that individuals systematically underestimate how quickly the variance of the mean in a sample decreases with a larger sample size. Theoretically within statistics, the variance of a sample moves towards zero as the sample size becomes larger. This phenomenon is argued to explain certain anomalies in the financial markets. For example, fast changes in stock prices can be a consequence of the overreaction of investors to good news.

Third, Figure 6 below shows that individuals tend to be more adverse to losses than they are attracted to gains of the same size. Actually, the authors found that the individuals value a moderate loss almost twice as much as an equally large gain. Also, instead of the value function being smoothly concave everywhere, as shown in figure 4, situation B, it is regarded to be concave for gains and convex for losses.

![Prospect Theory](image)

FIGUR 6: PROSPECT THEORY (KAHNEMAN AND TVERSKY 1979:279)

With this curve, the researchers show that the sensitivity towards a change in either direction from the reference point is diminishing. This means that the marginal value that consumers place on both gains and losses in general decreases with the size of the change in wealth. Also, there is a kink at the reference point, and thereafter the line is steeper for small losses than for small gains. This implies that the consumers are characterized by loss aversion.

3.5 SUMMARY

The theoretical framework is visualized in the figure below. The model has been developed in order to provide the reader with a vision of the connection between the theories and concepts in the framework. The model parts from the young investors’ decision process for warrants, which is the
focus of the study. Two opposing fields of research, here represented by traditional economic theory and the field of behavioral economics are seen as partly conflicting regarding underlying factors that explain decision making. Additionally, two factors are seen as influential on the decision process for warrants. Uncertainty and complexity characterize the context of buying warrants, factors that are not present in the traditional decision process model.

FIGURE 7: THEORETICAL MODEL
4. EMPIRICAL FINDINGS

This chapter describe the empirical findings of the Internet survey performed. To start, some general information about the investigated investors is depicted. Furthermore, the findings are structured according to the steps in the decision process model described in the theoretical framework.

4.1 GENERAL INFORMATION ABOUT THE RESPONDENTS

The conducted Internet survey resulted in 29 valid responses, of which 28 persons are male and one female. The year of birth of the respondents vary between 1979 and 1989, but 14 (48%) are born between 1985 and 1987. The respondents mainly live in Linköping, Stockholm, and Gothenburg, together adding up to 22 persons (76%). The remaining respondents are from Umeå, Gävle Önnestad and Borås. Furthermore, nine of the respondents do not belong to any financial association or society while four of the respondents are members of more than one association. The remaining 16 respondents are members of one financial association or society.

4.1.1 BUYER EXPERIENCE AND INVOLVEMENT

One of the questions in the survey concerned what other investments the respondents have made. Among the young investors studied, the majority, namely 28 out of 29 respondents, have previously traded with stocks. Furthermore, 24 of the respondents have also invested in mutual funds. Half of the respondents have invested in equity-linked notes, or so called ELNs. Moreover, turbo warrants is seemingly popular among the young investors. Furthermore, a few of the young warrant investors in question have already invested in apartments/houses. The respondents also had the possibility of adding securities that they missed in the pre-determined list over securities under the alternative named “Other”. Under “Other” were primarily subscription rights and unregistered stocks. The complete results are shown below.

![Diagram 1: Financial Experience from Buying Other Products](image-url)
Once the respondents had given an indication of their general financial experience from buying other products, they were asked to assess how many times they have purchased warrants. The results to this question are somewhat scattered: 7% have bought warrants once, 24% claims to have bought warrants between 2-5 times, 28% of the respondents have bought warrants between 6-15 times, 17% estimate that they have bought warrants 16-50 times while 21% state that they have bought warrants more than 50 times. (One respondent did not answer)

The respondents were moreover asked to, on a five degree scale; assess their degree of involvement before a new purchase of warrants compared to when they buy other financial products. Involvement was in this case defined as time consumption and amount of information search. Most respondents, 41 %, claim that they are neither more nor less involved before buying warrants compared with other financial products they have bought. 28 % claim to be more involved and 7 % consider themselves to be much more involved when buying warrants. On the other hand, 14 % believe that they are less involved and 7 % say that they are much less involved when buying warrants in comparison to other financial products they have bought.

In the scatter plot below the degree of involvement is combined with how many times the respondent has bought warrants. The number of respondents that has answered each combination is given above each dot. As seen by the pattern and direction of the plot, the two variables appear to be positively associated, that is, above-average values of one variable tend to accompanied by above-average values of the other and vice versa. As seen, the degree to which a respondent is involved (searches for information) before a new purchase of warrants increases with the number of times that the respondent has previously bought warrants. However the indifference regarding involvement appears on every level of transaction times.

DIAGRAM 2: NUMBER OF PURCHASES AND THE DEGREE OF INVOLVEMENT

<table>
<thead>
<tr>
<th>Involvement:</th>
<th>Number of purchases and degree of involvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = To a much lower degree</td>
<td>1 = Once</td>
</tr>
<tr>
<td>2 = To a lower degree</td>
<td>2 = 2-5 times</td>
</tr>
<tr>
<td>3 = No difference</td>
<td>3 = 6-15 times</td>
</tr>
<tr>
<td>4 = To a higher degree</td>
<td>4 = 16-50 times</td>
</tr>
<tr>
<td>5 = To a much higher degree</td>
<td>5 = More than 50 times</td>
</tr>
</tbody>
</table>

Number of respondents:

<table>
<thead>
<tr>
<th>Number of purchases:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
</tbody>
</table>
The correlation \( r = 0.53 \), mean value of involvement = 3.143, standard deviation of involvement = 0.98974 mean value of number purchases = 3.214, standard deviation of number of purchases = 1.2351

### 4.1.2 GENERAL BUYING BEHAVIOR

The young warrant investors were furthermore asked to make a general judgment about their buying behavior of warrants. The judgment scale ranged from a buying behavior generally built on a “gut feeling” towards a purchase decision that is well thought-out and informed. Most of the respondents (38%) considered their buying behavior as situated somewhere in between these two extremes, even though the purchase decision is leaning towards decisions that are considered to be well thought-out. A few people consider themselves to make well thought-out and informed choices while one of the respondents only uses his gut feeling.

Additionally, the general buying behavior was also combined with the degree of involvement before every new purchase. As shown in scatter plot below, there appears to be a positive correlation, although when calculated, the strength of the relation is not that strong (0.28). The respondents that have answered that they are very much involved are to some extent also the ones that claim to make well informed choices. Also, respondents that are leaning towards making decisions that are less thought-out and informed are also the ones that are less involved before a new purchase.

![Diagram 3: General Buying Behavior and Degree of Involvement](image)

Correlation \( r = 0.28 \), mean value for degree of involvement = 3.143, standard deviation for degree of involvement = 0.98974, mean value for general buying behavior = 3.172, standard deviation for general buying behavior = 0.94937
Once the respondents had expressed their experience from buying warrants, they were asked to **assess how much knowledge they see themselves as having about warrants**. The results show that: 31% of the respondents consider themselves to have little knowledge. 31% claims to have a large knowledge and 24% okay knowledge about warrants. Furthermore, 14% states that they have a very large degree of knowledge about warrants.

When compared with the number of purchases, the correlation in positive (0,5) and the degree of knowledge is increasing with the amount of times that the respondents have bought warrants. Here, none of the respondents asserts that they have very little knowledge about warrants even though they have bought warrants on very few occasions.

<table>
<thead>
<tr>
<th>Degree of knowledge about warrants:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = very little knowledge</td>
</tr>
<tr>
<td>2 = little knowledge</td>
</tr>
<tr>
<td>3 = either or</td>
</tr>
<tr>
<td>4 = large degree of knowledge</td>
</tr>
<tr>
<td>5 = very large degree of knowledge</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of purchases and degree of knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of purchases:</td>
</tr>
<tr>
<td>1 = Once</td>
</tr>
<tr>
<td>2 = 2-5 times</td>
</tr>
<tr>
<td>3 = 6-15 times</td>
</tr>
<tr>
<td>4 = 16-50 times</td>
</tr>
<tr>
<td>5 = More than 50 times</td>
</tr>
</tbody>
</table>

**DIAGRAM 4: NUMBER OF PURCHASES AND DEGREE OF KNOWLEDGE**

Correlation $r=0.47$, mean value for degree of knowledge=3.276, standard deviation for degree of knowledge= 1.047, mean value for number of purchases=3.214, standard deviation for number of purchases=1.2351

To continue the respondents were asked an open-ended question on **how they have obtained their level of knowledge.** Several respondents answer very vaguely, saying that they had either read or visited various homepages. About one third of the respondents answer that they have read literature or books on the subject and one third state that they have obtained their information from the Internet. The specific websites mentioned are derivatinfo.com and the official homepages of Handelsbanken and Avanza. Also, Google is mentioned as a way of finding relevant homepages. Several respondents also mention various forums and chats as their source of knowledge. One respondent claims that he has obtained his information exclusively by getting tips from other traders on various forums online. The associations “Swedish Shareholders’ Association” and “Young Swedish
shareholders’ association” were singled out as examples in a few of the respondents’ answers when online information, education, and forums were discussed.

One third of the respondents also state that they have obtained their level of knowledge from different courses at their universities, even though some judge the courses to be on a basic level or about securities in general, only mentioning warrants. Several respondents also mention more specific courses in financial mathematics and financial economics.

Among the respondents, one third assess that their level of knowledge originates from practical trading. Among the answers, “testing” was the first word written by several of the respondents. Similarly, several respondents say that they have primarily tested buying warrants or that they have learned by doing. A couple of the respondents claim to have obtained their level of knowledge by partly discussing warrants with family, friends, and teachers.

### 4.2 NEED RECOGNITION

On the question why did you decide to start buying warrants, nearly one third of the respondents explicitly mention the leverage as their primary reason for buying warrants. Moreover, several of these respondents refer to the leverage as their only reason. A few respondents also express the leverage as their primary reason but in other words, saying that they do not need as much capital for the same exposure towards a stock or that they buy warrants because a small deposit gives a large possibility of making high profits. Other respondents also bring up the fact that they can have a limited deposit while still being able to get a high return. Moreover, a couple of respondents explicitly say that they wanted to “make big money with small deposits”.

The recent financial crisis is also represented in the respondents’ answers. Several young investors state that their reason for buying warrants is related to the unstable stock market or to wanting to “profit from events in the underlying asset”. Several respondents mention hedging as a reason for buying warrants. A few explicitly point out hedging while one respondent specifies the answer by saying that he wanted to hedge the portfolio with a method that does not require a lot of capital. Yet another respondent claims warrants to be a good complement for protecting the portfolio. Two additional respondents also say that they wanted to be able to take a negative position, that is, to easily be able to go short when desired.

Many of the answers contain an element that perhaps does not belong to the same financial category as leverage and hedging. This element is many times expressed as pure “excitement” or as
something they do just for fun. Several respondents also say that they first started buying warrants by a coincidence and one respondent started investing in warrants after he had been managing a portfolio belonging to a family member being out of the country. One respondent saw warrants as an experiment while a couple of other respondents wanted to try and see how warrants work. One specific respondent said that “you have to try to know what they are about!” (Male, 1983, Stockholm).

4.3 SEARCH FOR INFORMATION

The respondents state that they collect new information before almost every new purchase. As visualized in the diagram below, the most common source of information among the respondents are different discussion forums and chats online. Almost 60% of the respondents include this option in their answer. Furthermore, the homepage of the respondents’ bank or stockbroker as well as different newspapers online and printed are common answers. Also, seven of the respondents mention that the social network of the respondent, consisting of friends and family, is used as a valuable and reliable source for tips and information. A minor percentage of the respondents answered that they almost do not search for any new information before a new purchase. Also, a few of the respondents point out that the most important information is the one analyzed by the respondent himself. Here, the respondents point out that by performing own research and investigations such as technical analysis the respondent can form his own judgement on which to base decisions.

![Diagram 5: The search for information before a new purchase](image)

Respondents were further asked what they think about the information provided by their bank or stockbroker on a five point scale ranging from very bad to very good information about warrants. The answers are illustrated in the graph below. The results show that approximately 40% answered
that the information is okay, but the results indicate that a majority of respondents seem dissatisfied or negative towards the information provided.

**Diagram 6: Opinions about the information provided by banks/stockbrokers**

**4.4 Pre-purchase evaluation of alternatives**

The survey also contained a question about what influences your choice of warrant, and where asked to give two factors that influence. The responses can be seen in the chart below:

**Diagram 7: Factors that influence the choice of warrant**

The responses are almost unanimous in the sense that the underlying asset is a major factor when selecting warrants, 28 of 29 respondents selected this option. Furthermore, 48% of the respondents also answered that the exercise price is decisive and 41% answered that expiry date influences what warrant they buy. Also, 13% of the respondents stated that the issuer is an important factor when selecting a warrant. One of the respondents explicitly states that he “choose warrant according to underlying asset, not according to issuer” (Male, 1985, Linköping) As one respondent points out, warrants are considered to be more complicated products and therefore demand a more active
customer which in turn makes it a time-consuming hobby. He also states that it is hard to judge the price development and make informed choices.

Furthermore, one respondent stated as follows when accounting for how he selects warrants: “I usually just sort out according to the underlying asset; rank after best suitability regarding the purpose with the investment and see to that there is not any totally unknown abbreviation in the warrant terms” (Male, 1984, Stockholm). To conclude, in general, there seems to be a lack of knowledge about whether warrants provided by different issuers differ in any way. More about the role of the issuer can be read in the section 4.7 **Attitudes towards the issuer.**

---

### 4.5 PURCHASE

When it comes to the purchase of warrants almost all respondents, 96%, buy their warrants online through a bank or stockbroker. Only one respondent answered that he has a personal contact at the bank. The majority of the respondents buy warrants through Avanza Bank (65%), Aktiedirekt (35%) or Nordnet (14%). Other answers were Swedbank, Handelsbanken, Nordea, and Skandiabanken. Eight of the respondents buy warrants from several banks or stockbrokers. Since the respondents were able to select more than one option, the percentages add up to more than 100 percent.

Furthermore, the respondents were asked: *Why do you buy warrants at the bank/stockbroker that you have chosen?* The responses vary, but the most common is that they have traded other products there earlier. The respondents find the chosen bank or stockbroker to be secure and experienced. A few respondents answered that family or friends use the bank or stockbroker. Approximately two thirds of the respondents also mention low brokerage as a reason, that is, the charge that the bank or stockbroker debits the customer when trading with warrants. A couple of the respondents also answered that an important factor is that the chosen bank provides good information about warrants. Another reason given from one respondent was that the chosen bank offers a large variety of warrants from different issuers on the market.
4.6 POST-CONSUMPTION EVALUATION

When asked if the respondents will continue to buy warrants the responses vary. 59% answered that they will continue to buy warrants, 10% are not sure, while 31% state that they are not going to buy warrants again. Additionally, an open-ended question in the survey stated: are you satisfied with the warrant as a product? The majority of the respondents seem satisfied with warrants as a product. Common responses are that warrants are a good complements to common stocks. Since the warrant has a higher leverage and the possibility of hedging it is considered to be a good complement in the investment portfolio. Several respondents consider the warrant to be a good product since it provides the possibility of high returns on small investments.

Nonetheless, there seem to be a common dissatisfaction when it comes to the information provided by the issuers on the factors that influence the leverage of a warrant. Generally the respondents state that the information is difficult to understand. One of the respondents that is very dissatisfied with the product and that does not trade with warrants anymore, states that: “Most market makers cheat when setting the prices and often do not quote any prices at critical events that can affect the stock market a lot. Often you just have to call them to point it out. I do not see any reason at all to buy warrants compared to stock/options!” (Male, 1981, Linköping). Those respondents dissatisfied with the product emphasize the necessity of more control of the warrant market as a reason for the dissatisfaction. Furthermore, several respondents state that the way issuers set prices is deficient. One of the respondents further argues that the brokerage for warrants is too high and that warrants are not issued on stocks that are interesting.

4.7 ATTITUDES TOWARDS THE ISSUER

The respondents were moreover asked their opinion about the issuers of the warrants, or more specifically about the importance of the issuer when making a decision to buy a warrant. The majority (41%) of the respondents think that the issuer is fairly important when choosing which warrant to buy. 21% feel that the issuer is “fairly unimportant”, 17% feel that the issuer is totally unimportant in their purchase decision and 14% think that it is neither important nor unimportant. Only 7% of the investors think that the issuer is very important.
The resulting open-ended question about the issuer concerns the difference that the investors’ experience between warrants provided by different issuers. The great majority of the respondents think that there is no difference or do not have any opinion about whether any differences exist. Some say that they have not thought about it and a few say that it is hard to form any judgment about the differences. This “category of answers”, of not being familiar with any differences, for whatever the reason, adds up to 14 respondents. One respondent continues by stressing that he chooses warrants according to underlying, not by the issuer, and yet another respondent also stresses the importance of the underlying assets. Furthermore, a few of the respondents add that they have no idea who the issuer was when they bought warrants.

A few of the respondents mention the terms of the warrants as the largest distinction between warrants from different issuers. For example, one respondent states that he has no idea who the issuer is, only caring about the terms, and choosing the warrant with the most appropriate terms.

A common answer to the differences experienced concerns the spreads and the pricing set by the issuers. Several respondents claim that the difference in pricing and spreads is the largest difference that they have experienced. One respondent explains that the issuer often is market maker of a warrant and since it is the market maker that sets the prices, the issuer is in this case of great importance. Moreover, a few answers contain a certain degree of accusations towards the issuers regarding the pricing. “Some market makers are better at always having registered bid- and ask prices. Some market makers are worse than others at this.” (Man, 24 years old, Gävle) Another respondent says that “there is a difference in the behavior of the market makers when it comes to the frequency and the speed of their updates. It feels like they are deliberately stalling the updates” (Man 20 years old, Stockholm). Yet another respondent claims that some market makers have a slower pricing and thereafter accuses some of the issuers of cheating. The same respondent claims
that the prices are adjusted faster after a change in the underlying asset when it is advantageous for the issuer.

### 4.8 INVESTED MONEY AND VIEWS ON RISK

A factor that appears when buying warrants is the risk involved in the investment. The study found that 82% of the respondents consider themselves to be more willing to take risks than other people their age. Meanwhile, 11% of the respondents mean that they are not more willing than others in their age when it comes to taking risks, while the remaining 7% do not have an opinion.

Furthermore, as seen in the table below, among the respondents that do not consider themselves to be more inclined to take risks or that do not know whether they are more willing to take risks than others their age, no one believes that they will continue to buy warrants. Meanwhile, among the respondents that consider themselves more willing to take risks, 17 out of 23 believe that they will buy warrants again.

<table>
<thead>
<tr>
<th>Will you continue to buy warrants?</th>
<th>Are you more willing to take risks than others your age?</th>
<th>YES</th>
<th>NO</th>
<th>No opinion</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td></td>
<td>17</td>
<td>0</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>NO</td>
<td></td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Do not know</td>
<td></td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>23</td>
<td>3</td>
<td>3</td>
<td>29</td>
</tr>
</tbody>
</table>

**TABLE 1: RISK WILLINGNESS COMBINED WITH FUTURE PURCHASES**

Another way of assessing risk willingness is the question asked about *what kind of money the respondents invest*. The respondents selected all options appropriate to them, therefore the percentage adds up to more than 100%. Among the respondents, 76% answered that they invest money they have earned from working extra or during the summer. Under the “Other” option, additionally two of the respondents answered salary. Moreover, 66% of the respondents buy warrants for money they have made on earlier investments. The money invested is also money that
has been inherited (28%), other people’s money, for example a family member’s or friend’s (7%), and study allowances (10%). Another 7% is borrowed money. Among the respondents that believe that they are not more inclined to take risks or that do not know whether they are more willing to take risks, only one had bought warrants for borrowed money or other people’s money.

Diagram 9: The origin of the money invested in warrants

The survey also contained an open-ended question asking how the respondents view the risk of losing money. Several respondents emphasize the risk involved when buying warrants, for example saying that “it is easy to lose money with warrants” or that “it (the risk) is very high”. In general, the risk component of buying warrants is considered to be a “natural thing” that has to be dealt with, that is simply a part of the game or that there is nothing strange about it. A couple of respondents also state that risk exists for every kind of security. Meanwhile, several respondents argue that risk and return correlate in the long run. Several state that they are willing to take risks as long as there is a high expected return. Moreover, as one of the respondent argues the risk is “acceptable, if you want to make any money!” (Male, 1983, Stockholm). The invested money furthermore seems to be money that the respondents estimate that they are able to lose. Several respondents stress the fact that only a smaller percentage of the money they invest is used buying warrants.

Some of the respondents value their money and argue that the risk is the “worst thing”. They state that it is important to decrease the risk by having a good money/risk management strategy. Yet another respondent argues that the risk is important since he has “limited capital to invest”. Others, on the other hand, seem more relaxed with the risk. One of the respondent’s states: “we only live once. Money is only paper and there is lots of paper” (Male, 1989, Stockholm) Another respondent compares trading with betting, and yet another one states that: “had the risk not existed, trading stock, derivatives et cetera had been boring. It is the risk that makes it all an exciting hobby if you trade a lot. In the long run you can relinquish the risk by investing in stabile companies that generate profit year after year “(Male, 1986, Umeå). These respondents seem to view the trading as a learning
process and consider it essential to try, and to lose, money in order to get better in the future, and make the “real” money.

4.9 SOCIAL STATUS AND LIFESTYLE

In the final question of the survey the young investors were asked if buying warrants fits into their lifestyle and/or if they think that buying warrants affects their social status. About 55% of the respondents do not believe that the fact that they buy warrants affect their social status among friends. Those that have answered that buying warrants may affect how people in their surroundings view them mention that they think that they might seem more knowledgeable if they buy more complex instruments like warrants. They also mention that when they talk about warrants with others they might be seen as people who are competent and good at what they are doing. Some respondents also mention that since they are buying warrants, people sometimes believe that they must be experts at the stock market. On the other hand, several respondents stresses that among their friends, everyone is as interested in financial securities and that investing in warrants therefore does not increase their social status within the social group.

The respondents appear more inclined to see a connection between warrants and their lifestyle than with their social status. One respondent says that he is very well-informed about warrants; interested in the market and at the same time willing to take risks. Therefore, buying warrants fits his profile. At the same time, one respondent says that buying warrants fits his investment profile more than his personal lifestyle even though he stresses that buying warrants by no means defines him as a person. A few respondents again mention that they seek excitement in their life and give the example that some like poker and some like buying warrants.
5. ANALYSIS

This chapter aims at describing and explaining the empirical findings of the survey with the help of the theoretical framework. The analysis is based on the research questions as well as the theoretical model that has been further developed with the empirical findings. The chapter discusses decision making for warrants and describes what differentiates the decision process of warrants from the traditional decision process model.

5.1 THE ANALYSIS MODEL

The structure of the analysis is based on the theoretical model developed in the end of chapter 3. The study tries to describe how young investors think and behave when they buy warrants (decision process for warrants), a process that implies making decisions under uncertainty and complexity. The chapter will focus on the different steps in the traditional decision process model. Furthermore, the implications of uncertainty and complexity will continuously be discussed in the stages in order to depict decision making for young adults that buy warrants. The empirical findings show that some characteristics, common for young investors, influence the decision process. These characteristics have therefore been added to the theoretical model.

![Analysis Model Diagram]

**FIGURE 8: ANALYSIS MODEL**

Characteristics of young investors:
- Preferences towards risk
- Interest
- Knowledge
- Individualism
5.2 BEHAVIORAL CHARACTERISTICS OF YOUNG WARRANT INVESTORS

5.2.1 PREFERENCE TOWARDS RISK

All the young investors asked that buy warrants are aware of the risks associated with buying the product. The traditional method of reducing risk is by diversification, that is, by having a portfolio consisting of different products or several different stocks (Pindyck and Rubinfeld, 2005:164). The survey shows that the respondents have invested in other securities, the majority of them in stocks and/or mutual funds. This shows that the respondents to some extent have diversified their portfolio. The proportion between the money invested in warrants and other products is however unknown.

Moreover, several of the respondents stated that they deliberately increase their risk exposure by investing in warrants, since it also increases the potential return. This means that the respondents are aware of the trade-off between risk and return as described by Pindyck and Rubinfeld (2005:173-179) in the theoretical framework. When exposed to a greater amount of risk, it takes a greater expected return in order for the investor to be equally well off.

The study shows that, among the respondents, the majority (82%) consider themselves more willing to take risks than others their age. The respondents can therefore be classified as risk loving as described by Pindyck and Rubinfeld (2005:161). A common characteristic therefore seems to be that they are less risk averse than others their age. They are not afraid of taking chances and making risky investments. This was furthermore apparent when it came to the money used for investing. Four of the respondents exposed themselves to very high risk by borrowing money in order to invest in warrants. As shown in table 1, the respondents answering that they see themselves as more willing to take risks than others their age are those that are going to buy warrants again, or that are not sure. Among those answering that they are not more willing to take risks than others their age, none of the respondents have answered that they are surely going to buy warrants again. This fact confirms the indications that the young adults that buy warrants repeatedly are risk loving.

Kahneman and Tversky (1979:279) state that individuals tend to be more adverse to losses than they are to gains of the same size. For the young investors that were studied, this theory seems to be valid. Several of the respondents have stressed the fact that the possibilities of gains have to be larger than the losses in order to invest. Losing money has to be overweighted by winning in the long run. One respondent explicitly argues that the risk of losing money has to be twice as low as the chance of winning.
Antonides and van Raaij (1998:164) explain that needs should be considered separate from wants, wishes, and desires. The authors consider needs as general, while wishes and desires are more closely related to a specific product. Moreover, Blackwell et al. (2001:72) assert that a need emerges from a feeling of difference between the actual situation and the ideal situation of an individual. In this study, the individuals were found to buy warrants for three major reasons. The most cited reason was the leverage. The cost of buying a warrant is considerably lower than investing in the underlying asset and a warrant can from a small movement in the underlying asset bring a high leverage, a higher return, on the invested capital (see appendix II). Accordingly, the primary motivator seems to be a monetary one and warrants are seen as a mean of reaching that goal. This monetary motive is in line with the assumptions of the homo œconomicus which is driven by self-interest and material incentives.

Many of the respondents also stated reasons for buying warrants that are not purely monetary. In these cases excitement, gaining knowledge, and learning for own personal development were given as reasons. Several young investors mentioned that they wanted to try to buy warrants just to see what warrants are about and many claimed that they had gained their knowledge about warrants primarily from practical testing. Some also compared buying financial instruments to poker or other activities connected to gambling. The excitement and experience of buying warrants can therefore be seen as motivating for these respondents.

The third major reason given by the respondents is associated with the recent financial crisis. By buying a put warrant, it is possible to benefit from a financial recession (see appendix II). Considering that almost every respondent has previously bought stocks, it is reasonable to believe that many of them have a shareholding today as well. With the strong downward trend in the stock market, it is logical that the respondents in possession of stocks wanted to hedge their portfolio by buying put warrants (for put warrants, see appendix II). Blackwell et al. (2001:73) have also found that environmental influences, in this case represented by the financial crisis, can cause need recognition.

As classified by Blackwell et al. (2001:73), need recognition may appear as a result of different influences, among others lifestyle, values and attitudes. The study shows that the majority of the respondents do not believe that buying warrants affects their social status nor does it have a connection to their lifestyle in general. The tendency in the answers given by the respondents was associated to the fact that many claimed that their friends are also interested and knowledgeable in
financial instruments. Since people in their surroundings appear to be similar to themselves in this matter, their social status, and how the respondents are seen by their surroundings, are therefore not affected.

Even though the survey has provided information about the reasons (the needs) for buying warrants the actual factors that cause need recognition are difficult to detect, especially the individual influences. In many cases, the customers do not know why they act the way they do. The environmental influences, such as economic recessions, are however apparent factors that causes need recognition.

5.3.2 SEARCH FOR INFORMATION

As argued by Blackwell et al. (2001:73-76), an individual can search for information both actively and passively. The authors also classify the search as internal and external. Internal search involves retrieving information from memory and past experiences and when the internal search is not sufficient in order to make a decision, the consumer engages in an external search. The survey showed that the majority of the respondents use discussion forums and online chats as their primary sources of information. The respondents can therefore be considered more attracted to nonmarketer-dominated sources as defined by Blackwell et al. (2001:73-76). The young investors also use the information provided by the homepages of their banks or stockbrokers. Following the decision process model of Blackwell et al. (2001:73-76,107), this search for information can be classified an active and external search.

Since warrants are complex financial instruments they require an active and constantly updating investor that monitors the financial markets, the performance of the warrant as well as an investor that searches more extensively for information before a new purchase (see appendix II). The amount of external information search should, according to Harrison (2003), depend on the complexity of the product, the uncertainty of the outcome, and earlier experiences of the product. Consequently, the degree of internal search should be greater the more experienced the investor. This however does not seem to be the case among the respondents. As diagram 2 indicates, the number of times that the investors have bought warrants is positively associated with the degree of involvement. This means that experienced buyers search for more information externally than inexperienced buyers, even though inexperienced buyers, according to Blackwell et al. (2001:106-107), do not have the experience necessary to make decisions based on internal search and should therefore engage in extensive external search.
As Becket (2002:193) argues, the more able a person is to anticipate the outcome of the purchase, the lower the degree of uncertainty of making a decision. Harrison (2003) adds that the uncertainty of a purchase can be reduced by searching for information. Considering the nature of warrants, it is useful for the buyers to get accurate and understandable information from their banks and stockbrokers. The survey indicates that the information provided to the investor is fragmentized and is presented in many shapes and by a variety of channels. The information provided by the respondents’ banks and stockbrokers is generally considered to be okay, but many lean towards considering the information to be bad or very bad. According to Cui (2003), the fact that consumers find the information difficult and intricate only adds to the complexity and uncertainty of the purchase. Beckett (2000) on the other hand also gives financial instruments as an example of products where it is practically impossible to make comparisons between products. Therefore, the importance of extensive information search can perhaps be questioned.

5.3.3 PRE-PURCHASE EVALUATION

As explained in the theoretical framework, the consumer gathers a few alternatives from which a decision to purchase is made. This comparison between products is based on the individuals’ personal evaluative criteria (Blackwell 2001:76-78). The respondents clearly state that the underlying asset is the most important factor when deciding which warrant to buy. They also consider the exercise price, but to a much smaller extent than the underlying. Some respondents also have very individual ways of choosing warrants.

Due to the longevity and intangibility of services, and among them warrants, the respondents seem to find it difficult to evaluate the quality and performance of the product (Harrison 2003). The consumers therefore turn to evaluating other indications of quality, for example the bank itself, in this case the issuer. In the study, the respondents consider the issuer to be quite important when making a purchase decision even though they generally have very little, if any, knowledge about differences in warrants issued by different issuers. Furthermore, among those respondents that said that they do not know what the difference between warrants is, several admitted that they had never thought about it. In other words, many do not compare at all, and those that do compare have problems with noticing any differences. According to Cui (2003), the consumers also turn to the homepages of their banks to get cues about the quality of the products. As mentioned in the discussion about information search, the homepages of the respondents’ banks are the second most used source of information about warrants. Furthermore, the banks and stockbrokers that the
respondents have chosen are Internet based (see 5.3.4 Purchase). Following the reasoning of Cui, who emphasizes the appearance and information of the homepages, the respondents might turn to stockbrokers that provide good information about what to expect from their products via their homepages.

The survey also indicates that the respondents consider themselves to make decisions that are partly based on feeling and partly on information search even though they lean towards believing that they make informed and well thought-out choices. As mentioned earlier, the experienced buyers are more involved before a purchase than the less experienced ones, although this, according to Antonides and Van Raaij (1998:258), does not mean that they make more rational choices. The authors state that people increasingly trust their choice in cases where they have engaged in a lot of information search. Diagram 3, where the general buying behavior is put in relation to the degree of involvement, indicates that there is a correlation between the two variables. The correlation was low; indicating that there is only a small positive association between a higher degree of involvement and a well thought-out and informed choice or, in other words, a rational decision. So, the buyers that are more involved, and also more experienced as found earlier, also consider themselves to be more rational than the more inexperienced ones. But, on the other hand, this can be an example of the argumentation made by Antonides and Van Raaij where people, who have a lot of information on which they base their decision, perceive themselves as more rational even though that might not be true.

5.3.4 PURCHASE

When it comes to the purchase of warrants the respondents seem confident and independent when making their decision. The survey shows that almost all respondents buy their warrants through the Internet and without any personal contact with a bank or stockbroker. Moreover, the most used stockbrokers and the most used bank for buying warrants are Avanza Bank, Aktiedirekt, and Nordnet. Noticeable for these choices is that they are all internet based banks or stockbrokers. This is a fact that indicates a lack of importance of personal and physical contact with the bank/stockbroker while the Internet as a communication channel is of great importance. The choice of using Internet based banks and stockbrokers are perhaps a consequence of the rapid movement in the warrant market that demand the buyer to make fast decisions to buy or sell. It might also be that these banks and stockbrokers are associated with and specialized in trading certain products that attract the young investors.
Furthermore, seven of the respondents buy warrants from several different banks or stockbrokers. This shows a tendency of young investors not being loyal to one bank or stockbroker exclusively when purchasing warrants. In general, the reason given for trading at the current bank or stockbroker was convenience; the respondents had already bought other products at the bank. Low brokerage also was considered important for many of the respondents; a fact that indicates that the price of buying warrants is important.

A purchase can, according to Kanuk and Schiffman (2000:456), be classified into three categories; trial purchases, repeat purchases and long-term commitment purchases. Several of the respondents say that they obtain knowledge about warrants by testing and experimenting. A fact that indicates that purchases in many cases can be classified as trial purchases and that many of the respondents still are in the exploratory phase of buying warrants. 21% of the respondents had, however, bought warrants more than 50 times, which on the other hand can be classified as repeat purchases.

5.3.5 POST-CONSUMPTION EVALUATION

After a purchase, the experience of buying a product or service is evaluated (Blackwell et al., 2001:80). The post-consumption evaluation is based on whether the outcome is matched with the pre-purchase expectations of the product. In general, the respondents were satisfied with warrants. More specifically, most respondents seem satisfied with the aspect that they see warrants as a good complement in their investment portfolio, but they express strong negative feelings towards the market makers, price setting and lack of information. This indicates that many of the respondents have evaluated, not the product, but things and features connected to buying warrants, such as the information about warrants and the function of the warrant market as a whole. This is in line with the argumentation made by Harrison (2000:61) who states that the complex situation of evaluating financial services makes the customers turn to evaluating factors that are discernible to them.

As noticed by Harrison (2000:61), buyers are faced with a dilemma regarding the evaluation of financial services. The warrant buyers are partly responsible if the outcome does not match their expectations since they make the decision to buy a warrant and also decide which warrant to buy. Also, since the product is intangible, it is not as easy to blame the warrant when the outcome is negative. The study showed that very few of the respondents admit to having anything to do with the negative outcome of buying warrants.
Customer satisfaction is important since it, as argued by Antonides and van Raaij (1998:480), affect future buying behavior of the customer. The majority of the respondents will buy warrants again but some have decided to gain more knowledge about warrants before buying again. As mentioned in the purchase stage of the analysis, many of the respondents appear to make trial purchases in order to gain knowledge. This indicates that the young investors do not study and evaluate available alternatives before a purchase, but rather purchase, evaluate, and learn afterwards.

As discussed in the theoretical framework (Blackwell et al., 2001:80) satisfaction depends on whether the expectations are matched with the outcome of the product. The motives for buying warrants given by the respondents are primarily the leverage, excitement, the financial crisis and knowledge. These are all expectations that logically can be met by buying warrants. Therefore it is possible that the dissatisfaction of many of the unhappy respondents is not due to a mismatch between expectations and outcome. However, since the motives are very individual, it becomes hard to identify them. Latent needs might not have been identified in the study and therefore there can be an underlying mismatch between real expectations and outcome. Also, individuals often cannot identify why they act the way they do (Cui 2007). Furthermore, following the reasoning of Harrison (2000:61), the satisfaction with financial services often depends on how clear the consumers can state their need to the financial adviser. The respondents in the study make individual choices on the Internet, a fact that can further complicate the fulfilment of expectations.
6. CONCLUSION

6.1 WHAT ARE THE MAIN CHARACTERISTICS OF THE YOUNG INVESTORS THAT ARE INVOLVED AND INTERESTED IN BUYING WARRANTS?

Several factors that can characterize young investors have been found. To start, the young investors are characterized as excitement seeking individuals that also see their purchases of warrants as a means of gaining knowledge. Knowledge and interest are also common characteristics of these investors. They further have previous experience from buying other financial securities, primarily stocks and mutual funds. They are aware of how they can use warrants to attain their financial motives, for example through the leverage, hedging, and diversification. Another main characteristic of the young investors that buy warrants is that they are more inclined to take risks than others their age, although their buying behavior is generally characterized by loss aversion. Furthermore, individualism seems to be an important characteristic. The young investors are usually independent in their purchase decisions, which are based on information they gather themselves, mainly using the Internet (homepages, discussion forums and chats) and they furthermore buy warrants at Internet-based banks/stockbrokers.

6.2 WHAT DIFFERENTIATES THE DECISION PROCESS OF BUYING WARRANTS, WHICH IS A FINANCIAL PRODUCT, FROM THE TRADITIONAL CONSUMER DECISION PROCESS?

The decision process for buying warrants has been found to differ from the traditional decision process model. The study has indicated that the respondents are not always clear over their need for warrants. Also, comparing alternatives and differences between warrants has been found to be difficult due to the complexity of warrants. It became clear that the respondents simplify their decision as much as possible, analyzing variables that are understandable to them.

The importance of searching for information before a purchase of a financial product is greater than for a physical product since it reduces the uncertainty of the decision. However, since the information about warrants many times is difficult to understand, it also becomes more difficult to make comparisons. The young investors choose warrants almost exclusively according to the underlying asset and have little knowledge about differences between warrants. Due to these difficulties of comparison, the decision therefore becomes less rational than for physical products. One major difference found in the decision process of warrants, when compared to the traditional
decision process model, was that search for information and evaluation of alternatives often tend to be a mixed process. Continuous scanning for new information as well as updating the choices is made at the same time.

The study shows that in many cases the purchase stage seems to be made before assessing alternatives and searching for a lot of information. Furthermore, post-purchase evaluation is ambiguous in evaluating the performance and satisfaction of the product that is often evaluated on features connected to the warrant. The decision process of young investors that buy warrants also appears to be less rational and informed since the respondents generally see their purchases as a learning process.

6.3 HOW CAN THE DECISION MAKING UNDER UNCERTAINTY AND COMPLEXITY BE DESCRIBED WHEN YOUNG INVESTORS BUY WARRANTS?

To conclude, the study is considered to show that the decision making of young investors can be described as neither optimal nor rational when buying warrants. The respondents seldom seem to make efficient and as rational decisions as the Blackwell-Miniard-Engel model implies. Factors such as uncertainty and complexity prevent a rational decision, but at the same time, the respondents generally seek to attain an optimal choice, although they settle for a satisfactory one. Instead, decision making when buying warrants can be described as contingent upon individual attitudes and perceptions towards money and losses.
7. DISCUSSION

This section provides opinions and recommendations of the authors to companies that provide warrants and/or that have an interest in young investors.

7.1 HOW TO APPROACH YOUNG INVESTORS

The study shows that young investors seem more attracted to and use the Internet as their primary channel for buying warrants. Internet seems to be a convenient way for this age group to buy warrants, since they all are used to this channel. It is therefore recommendable for banks and stockbrokers to formulate information and marketing warrants through the Internet. Also, young investors have been reached by contacting financial associations/societies and groups at different universities. Communicating and establishing relationships with these groups can be advantageous.

It is furthermore important for banks and stockbrokers to have new, innovative ways of reaching these customers. They seem more attracted by non-traditional channels. The most commonly used banks and stockbrokers mentioned were Avanza Bank, Nordnet and Aktiedirekt. Since these are banks that are more specialized on stock related products, they seem to, in general, be considered more experienced and knowledgeable. Moreover, since these banks are more associated with the products, it might be hard for traditional banks to compete with them. On the other hand, the respondents do not all seem loyal to the bank or stockbroker that they use, but rather buy at different banks or stockbrokers.

Furthermore, negative feelings from many of the respondents towards the market makers have been formulated. In order for the respondents to be more satisfied with the product and the market maker, better information about warrants and how prices and spreads are set, for example on the homepage, is appropriate. There also seems to be a problem with customers distrusting the issuer as well as the warrant market as a whole. There is therefore a need for the issuers to communicate reliance and trust to the customer.
The study has made many questions arise. There are a considerable amount of possibilities for further research within the area of decision making. Using a survey as a research tool that relies on the individuals’ recollections and perceptions of themselves often does not depict real behavior. In the spirit of behavioral economics, the use of different experiments can therefore contribute with nuances that the participants themselves are not aware of in their own behavior and therefore do not think of mentioning in a survey.

Another idea for further research is to study the respondents in a later stage in life. Since decision making is known to change with age and environmental influences, it would be of interest for the field of consumer behavior to investigate how and whether the respondents have altered their way of making financial decisions.

The role of the issuer is a frequently occurring factor that has emerged in several stages of the decision process. The issuers, and the way that the warrant market functions as a whole, appears to attract a lot of attention from the young investors and also brings out many strong negative opinions. Studies that more closely elaborate the differences between warrants issued by different issuers as well as studies that investigate the perception that investors have of the issuers can also contribute to the knowledge about how warrant investors make decisions.
9. REFERENCES

9.1 BOOKS


Blackwell, Miniard and Engel (2001), Consumer behavior, Ninth edition Mason: South Westerns

Blumberg B. et al. (2005), Business Research Methods, McGraw-Hill Education

Björklund B. and Paulsson U.(2003), Seminarieboken – att skriva, presentera och opponera, Studentlitteratur: Lund


Bryman A. and Bell E (2005), Företagsekonomiska forskningsmetoder, Liber Ekonomi: Malmö


Jacobsen Dag I. (2002), Vad, hur och varför?: Om metodval i företagsekonomi och andra samhällsvetenskapliga ämnen, Studentlitteratur: Lund


9.2 ARTICLES


Mellqvist G. (2009), 1900 procent upp - på en dag, Dagens industri [2009-04-02]


9.2 ELECTRONIC SOURCES


Dagens industri (2008), Marknaden räknar med fortsatt börsnedgång, https://di.se/Nyheter/?page=/Funktioner/ArtikelKommentarer.aspx%3FarticleId%3D2008%255C255C12%255C315809%26acmShow%3Dtrue%26SectionID%3DBorsMarknad%26menusection%3DBorsMarknadBorsMarknadNyheter%26sortby%3D0%26Page%3D2 , [2009-05-02]


Knight F, 1921, Risk, uncertainty, and profit, http://www.econlib.org/library/Knight/knRUP.html, [2009-08-04]


APPENDIX I

Survey questions:

The trading of warrants has increased in Sweden during the last years. At the same time more small savers have entered the warrant market. The following survey is part of a bachelor thesis at Linköping University. The purpose of the thesis is to investigate the buying behavior and decision making of young warrant buyers. The survey requires that you as a respondent have at least once bought warrants. The survey will take approximately 10 minutes to fill out.

1. What year are you born?
2. What sex are you?
   - Male
   - Female
3. Where do you live?
4. Are you part of any financial association? If yes, which association?
5. How many times have you bought warrants?
   - Once
   - 2-5 times
   - 6-15 times
   - 16-50 times
   - More than 50 times
   - Do not know
6. How much knowledge about warrants do you consider yourself as having?
   - Very little degree of knowledge
   - Very large degree of knowledge
7. How have you obtained your level of knowledge?
8. What other investments, apart from warrants, have you made?
   - Stocks
   - Government bonds
   - Company bonds
   - Turbo warrants
   - Mutual funds
   - Equity-linked notes
   - Currencies
   - Futures
   - Forwards
   - Swaps
   - Apartment/house
   - Land
   - Other
9. To which degree are you involved before a new purchase of warrants compared to when you buy other financial products? Involvement means time consumption when making investment decisions and amount of information search.
10. Why did you decide to buy warrants?

11. How would you generally describe your buying behavior of warrants?

   I usually use my “gut feeling” o o o o o I make well though-out, informed choices

12. How do you buy warrants?

   o Through my bank (personal bank contact)
   o Through my stockbroker (personal broker)
   o Through my bank (Internet)
   o Through my stockbroker (Internet)
   o Other

13. At which bank or stockbroker do you buy warrants?

   o Avanza Bank
   o Aktiedirekt
   o E*trade
   o Swedbank
   o Nordnet
   o SEB
   o Handelsbanken
   o Nordea
   o Skandiabanken
   o Danske Bank
   o Aktieinvest
   o Other

14. Why do you buy warrants at the bank/stockbroker that you have chosen?

   o Low brokerage
   o I have bought other products there earlier
   o My friends/family buy there
   o They offer a large supply of own warrants
   o They provide good information about warrants
   o The bank/stockbroker feels safe and knowledgeable
   o Other

15. How do you search for information about warrants before a new purchase?

   o Family
   o Friends
   o School/Courses
   o Interest organizations, for example the Swedish Shareholders’ Association
   o Homepage of my bank/stockbroker
   o Financial newspapers, for example Dagens Industri
   o Financial newspapers online
   o I hardly search for any information
   o Discussion forums/chatpages
   o Other
16. What do you think about the information about warrants provided by your bank or stockbroker?

Very bad o o o o Very good

17. What influences your choice of warrant? Choose the two most important factors.

- Underlying asset
- Expiry date
- Exercise price
- Issuer
- Expected return
- Expected risk
- Other

18. What difference do you experience exist between warrants provided by different issuers?

19. How important is the issuer when you choose between warrants?

- Totally unimportant
- Fairly unimportant
- Neither important nor unimportant
- Fairly important
- Very important

20. Are you satisfied with the warrant as a product? Motivate why or why not!

21. Will you continue to buy warrants?

- Yes
- No
- Do not know

22. Do you think that buying warrants fits into your lifestyle and/or affects your social status among family and friends? Motivate!

23. What kind of money do you invest?

- Study allowances
- Money from working extra/during the summer
- Money I inherited
- Money made on other investments
- Money I borrowed (apart from study allowances)
- Other persons money, for example family members
- Other

24. Would you say that you are more willing to take risks than other people your age?

- Yes
- No
- No opinion

25. How do you view the risk of losing money?

Thank you for your participation!
APPENDIX II

Basic information about warrants

A warrant is a financial instrument, a derivative (it derives its value from an underlying asset), which is also described as a long option (ASX 2009). A warrant gives the holder the right, but not the obligation to either buy or sell an underlying asset at a predetermined price (exercise price) at a certain time in the future (expiry date). Warrants have similar characteristics to other derivatives, in particular options. The difference lies in that warrants are longer-traded options. A warrant can be traded during a limited time period, which ends with an expiry date. The expiry date of a warrant often lies between 18-24 months in the future although most warrants are sold before expiry. The banks and stockbrokers that issue the warrants always offer buy- and sell rates (Derivatinfo 2009). Therefore, a holder of a warrant does not have to wait until expiry before the warrant can be sold. This fact makes warrants a very liquid instrument. If the warrants are not sold before maturity, the investment ceases on the expiry date. On expiry, there is not a physical transfer of the underlying asset, but the issuer and the investor automatically settle the gains and losses financially. The result is calculated as the difference between the exercise price and the value of the underlying instrument on expiry.

There are two types of warrants: call warrants and put warrants (Nordnet 2009). A call warrant gives the holder the opportunity, but not the obligation, to buy an underlying asset to a given price at a predetermined time in the future. A call warrant therefore benefits from an upward price movement in the underlying asset. A put warrant on the other hand, gives the holder the opportunity, but not the obligation, to sell an underlying asset to a given price at a predetermined time in the future. A put warrant therefore benefits from a downward trend in the underlying instrument.

The easiest way to describe how a warrant functions can perhaps be done with the help of an example given by Nordnet, a Swedish Internet-based stockbroker. Imagine yourself being handed a coupon that gives you the right to buy a box of chocolate at your local supermarket for SEK 50 while the normal price is SEK 70 (Nordnet 2009). The coupon is valid for a year. Since buying the box of chocolate would save you SEK 20 you could say that the value of possessing the coupon is 20. This can be called the real value of the coupon. Three months later however, due to a rise in the price of cacao and in the salaries of the employees, the supermarket is forced to raise the price on the boxes of chocolate. They now cost 90. This is an increase of almost 30 per cent. But you, as owner of the coupon, can still buy a box of chocolate for SEK 50. Automatically, the value of your coupon now has
gone up to being at least SEK 40. This is an increase of 100 per cent in the value of your coupon, much more than the original increase in the price of a box of chocolate (30%).

What happens if the price of the box of chocolate falls to SEK 50? This means that you do not get any discount since you have the right to buy a box of chocolate for the same price. Also, not many would be willing to buy the coupon from you. However, your coupon is probably not worthless due to the fact that the supermarket might have to raise the price again before your coupon expires. This potential increase in the price would again make your coupon valuable. This can be called the time value of the coupon, which exists because there is probability that the value of your coupon will rise again before it expires. These are the basic principles of warrants.

Instead of having boxes of chocolate as underlying assets, warrants are normally issued over securities such as shares, baskets of different securities, share price indexes, debt, currencies or commodities (Derivatinfo 2009). In the Swedish warrant market, the warrants are almost always issued with stocks of the 30 largest companies in Sweden as underlying assets. Warrants are moreover only issued by banks or stockbrokers. In Sweden there are eight issuers; Handelsbanken Capital Markets (the largest issuer in the country), Swedbank, Commerzbank, Nordea, The Royal Bank of Scotland, UBS Warburg, Carnegie and Société Générale. The exercise price, which is the price for buying a warrant, is often fixed when the warrant is issued. Since there are no standardized terms for warrants, the exercise price is set by the issuer.

The main advantage when trading with warrants is the leverage. Due to the leverage the value of a warrant changes more in downturns and upturns than the original change in the underlying asset (Swedish Financial Supervisory Authority 2006). This implies that the investor can gain more but is at the same time exposed to a higher risk. There is also a counterparty risk that refers to the risk that the other party, in this case the issuer, cannot, or will not, commit to its obligations of the deal (Swedish National Debt Office 2009).

Warrants are according to Nordnet first and foremost suitable for the speculative investor that is well educated about the risks of warrants and are normally used as a very short-term instrument for speculation. They can however be used on a long-term basis, but that requires that the investor continuously follows the development of the investment since a small change in the value of the underlying asset(s) causes a larger change in the value of the warrant and makes the warrant market a fast and constantly changing market (Ibid).