How ability and previous knowledge effect working memory in a financial setting

Abstract

Swedish people invest more and more in funds. Much research has been done about how to best present probabilistic information in a way that the consumer understands. But all this research has taken for granted that the consumer has access to all the information when making a decision. We wanted to investigate how ability to understand fund information and previous knowledge of the subject affected the consumer's ability to recall fund information. We created a survey that tested fifty-one students' working memory, financial literacy and their ability to recall fund information. A connection was found between both financial literacy, previous knowledge and the ability to recall fund information. Thus, all investors do not have the same prerequisite.

Key words

Economic psychology, Financial choice architecture, Financial literacy, Financial memory, Working memory

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Definitions

Choice architecture: The presentation of choices and information.

Financial literacy: Measures how well an individual can understand and use personal finance-related information

Financial working memory: A variable created from the data in the survey intended to measure the participants working memory of financial information. It consists of an overall score described in more detail in section 3.5 of this paper.

Free recall: An individual's recall without any external cues.

KID: Key Information Document on investment funds summarizing important information of a PRIP that financial institutes in Europe are obliged to provide potential investors.

Long-term memory (LTM): An individual's long-term storage of information.

Memory: Memory refers to the processes that allows us to record, store, and later retrieve experiences and information.

Nudging: A method to affect decision making, often used in public policy to achieve a non-forced compliance through choice architecture.

PRIP: Packaged retail investment product. A range of investment products marketed to individual investors.

Probed recall: Recall with the assistance of external cues.

Sensory storage: Brief, unconscious registration of our surrounding.

Short-term memory (STM): An individual's temporary storage of information.

SRRI-scale: Synthetic risk and reward indicator. A 7-point scale table included in KID, in which a funds risk is highlighted compared to the market, where 1 is low risk and 7 high.

Working memory: The temporary storage and manipulation of information. A part of the short-term memory.

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1.Introduction

Imagine that you are going on a trip with your friend next week and that you are going to rent a car. Naturally you will pay more attention to the ads on the subject of car rental. Perhaps you will encounter a big poster from Company A while waiting for the bus. This poster tells you all about the very beneficial prices per mile and the low insurance cost. You nod to yourself and think that this must be the best deal on the market and then your bus arrives. A week later your bags are packed, the coffee is in the travel cup and your friend is by your side. It is time to rent a car! You tell your friend that you should rent one from Company A but your friend disagrees, you should rent one from Company B. Apparently your friend saw an advertisement yesterday from that company about their great offers. Since the both of you are rational customers you decided to compare the deals but unfortunately you can only recall the prices per mile and your friend can only recall the insurance cost. You try to search for the information online but you shortly realise that this will take more time than you are prepared to spend. In other words, you will not be able to compare the deals.

Would it not have been beneficial for all parties involved, both for you and your friend as well as Company A and Company B, if the information presented in the advertisements had been presented in a way that would have been easier for you to recall?[1]

1.1 Background

To provide the reader of this thesis with an understanding of the necessity to elaborate more research on the effect of memory in a financial setting. An initial background will here be presented.

In this thesis, the following definition of memory will be used since it is widely accepted and seen as the norm (Passer, & Smith, 2004): "Memory refers to the processes that allows us to record, store, and later retrieve experiences and information".

The initial story was a practical example of how we everyday face information about costs and investment opportunities, in this case renting the car with the best deal, and how hard it can be to recall this information when it is time to make a decision. In this thesis, we will

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[1] One solution to this problem could be to write important information on a notepad (digital or physical) but that requires that the one (i) realizes that the information is important, (ii) understands the limitations of one's own memory and (iii) always have this notepad close (and charged if it is digital).

explore the presentation of costs, returns, risk and overall investment opportunities in the fund market. Because it is a market that is standardized by regulations, thus the practical relevance will include the whole market. Starting with a description of how financial information is presented in Europe today followed by a review of academic research of memory and choice architecture.

1.1.1. Financial information presented in Sweden and Europe

The implications of how financial information is affected by memory is relevant for all industries that uses financial information in their communication with customers. Because it is in their best interest that the customer is able to remember their advertisements and beneficial offerings. If their products are not remembered they risk losing potential customers.

In order to present the possible gains to be made through introducing memory in the analysis of financial settings, an initial presentation of the existing difference in individual's capabilities is presented. This is followed by a section about the efforts made by policy makers to mediate the differences between consumers. Hence, to get a deeper analysis this market review is focused on an area of interest among policy makers to mediate the effect of: the bond and stock market offering packaged retail investment products (PRIP:s) as it (i) uses financial information, (ii) offers a product where the choice depends upon the individual's understanding of the information, and (iii) a choice where it is important to have access to all available information to make a rational choice. From this point, the thesis will focus on financial information used in a fund setting.

1.1.2. Consumers and funds

Swedish people are avid investors in funds. In 2016 a new all-time high was reached, never before has so much of the Swedish people's money been accumulated in funds (Swedish Investment Fund Association, 2016a). A vast majority of the working swedes are investing their money in funds according to a recent survey conducted by the Swedish fund association on working swedes (n=1500) (Swedish Investment Fund Association, 2016b).

The Swedish Investment Fund Association (2016b) have investigated the Swedish consumer's attitude to funds. They found that when a consumer chooses to start investing their money the two most valued aspects (value 4 or 5 on a 5 point grading scale) are the service offering (82%) and the possibility to meet an advisor in person (59%). Concerning the present

ownership 54% answered that their decision was made with the recommendation of an advisor, in comparison only 33% actively searched themselves. Apparently, it seems like people in general prefer assistance in their choice. This need for assistance might be founded in the fact that the majority of the consumers lack basic financial understanding, in this case meaning that they cannot answer three questions on interest, inflation and financial risk correctly (Finansinspektionen, 2015). For example, 74% answered that they were uncertain prior to the purchase whether or not the yearly fee was charged (Swedish Investment Fund Association, 2016b).

The fact that the Swedish population experience a limitation in understanding of financial information (Finansinspektionen, 2015) is not as controversial as one might think. These limitations are not unique for the Swedish population but rather a problem in all countries, in fact the Swedish understanding of fund information were among the top in the world (Klapper, Lusardi, & van Oudheusden, 2015). An adequate example of how consumers lack of understanding of the market is negatively affecting their choices is their large bearing of cost from the latest financial crisis 2008, were individual investors lost tremendously as they were unable to identify the risk with their investments (Stössel, & Meier, 2015). Furthermore, the relation between difficulty in understanding financial concept have a positive relation to the possession of subprime mortgage and less beneficial economic decisions (e.g. overpriced loans) among consumers (Gerardi, Goette & Meier, 2010). Furthermore, research has also found that memory is connected to individual's decision making (Bechara, Damasio, Tranel & Anderson, 1998).

1.1.3. Present practice of fund information presented in fond settings

In order to regain trust towards financial investments and avoid decisions being tainted by a lack of understanding of fund information among consumers the European parliament enforced a regulation on the 26th of November 2014 (European Union, 2015). The regulation was put in use on the 31st of December 2016 and is intended to facilitate consumer understanding of fund information through forcing financial institutes to provide easy to grasp information to all PRIP:s they offer. The information is provided in a few pages key information document (KID) with the objective to increase transparency and assist individual investors in their decisions (European Union, 2012). KID contains information of aspects consumers have a documented problem to grasp, they have for example a difficulty in determining risk and hence tends to underestimate it during decisions (European Union,

2015). To formulate a template of a KID multiple studies has been conducted on European consumers (Stössel, & Meier, 2015; European Union, 2015). The intention with the study was to measure consumer engagement with the material provided in KID, it's usability and individual ability to compare between products (European Union, 2015). The implications of the studies are that the choice architecture of information have impact on facilitating understanding of the fund information. From the study, several stimuli have been evaluated, among them a SRRI-scale that provide the consumer with a summarized overall risk connected to the fund (European Union, 2015).

1.2 problem area

Much research has been conducted concerning how to best present probabilistic information (Andersson & Almqvist 2016; Newall, 2016; Weber et al., 2005). However, there is only a limited amount examining how to present fund information, an area where consumers have difficulty understanding, and knowledge differ between individuals which affects their choice (Gerardi et al., 2010). The research concerning recall of fund information needs elaboration as almost no research has been done, in particular on recall of fund information together with the effect of how the information is presented. In the studies made by public policy investigations and scientific research the assumption that individuals have all the information accessible upon examination and choice (Foster et al., 2015). In their research consumers have been asked to answer questions based on their understanding of the information (Stössel, & Meier, 2015) or simply rank various format they prefer the most (Vlaev et al., 2009). However, preferences of presentation formats and actual usability is not the same thing. Even though the research is limited, working memory has been shown to contribute in a decision (Bechara, Damasio, Tranel, & Anderson, 1998)

To the best of our knowledge[2], no previous research has been done using memory as a moderator in choice architecture in a financial setting. The shortcoming of this research is to assume that the investor always has access to all information or look at preferences as equivalent as usability (Stössel, & Meier, 2015; European Union, 2015). We find this lack of research interesting and will attempt to fill this void. Furthermore, through previous studies we know that knowledge within an area is positively associated with recall (Gobet, & Simon, 1998). In connecting to present research within economic psychology in fund setting financial

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[2] we have performed several searches in literary databases and magazines (e.g. Ebsco)

literacy is a measure of basic financial knowledge and is here intended to be used as a moderator of recall. In figure 1 the relationship that will be examined is visually presented.
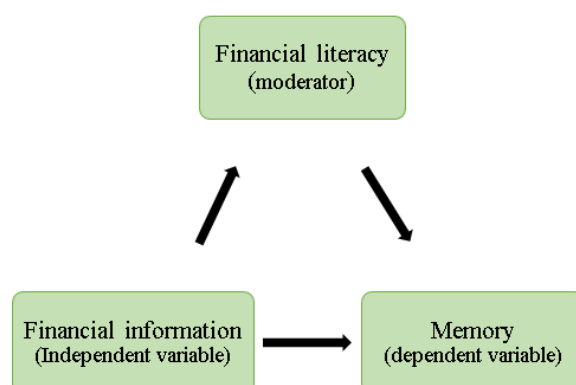
Figure 1. The relationship between the dependent variable memory and the independent variable financial information with financial literacy as a moderator.

1.3 Purpose and research question

This thesis will study how financial understanding facilitate memory and its relation to how the information is presented. Previous research has shown a tendency among individuals with understanding of a subject to recall more. Financial literacy will be included as a moderator of how well the participant can store fund information. The first research question will cover this aspect:

Is the working memory of fund information affected by an individual's basic understanding within the subject?

As presentation formats has been investigated heavily in order to create the optimal KID template we found it interesting to compare the recall of different formats included in the KID. When measuring variance in recall, the difference could be more evident through using visual and semantic stimuli when presenting and comparing the results, both within and between individuals. The measuring of recall of different formats will answer the second research question:

Is there any difference in how well consumer's recall different types of fund information?

1.4 Delimitations

This study was conducted in a computerized setting, used by previous studies within the area e.g. Gobet and Simon (1996). More specifically, the participants answered the study on computers. All the participants were well familiar with using computers, however the context of using it for memorizing might affect the result. The potential effect of using a computer is beyond the scope of this thesis.

As the study measures the participants working memory, It is of outmost importance to exclude any possible aiding devices when answering the survey. First, this limited us geographically, as it was necessary for us to control that survey was made according to the rule of no aid we had to be present at all time. The data collection was therefore restricted to the Stockholm area. Secondly, as the survey was cognitively demanding, we managed to offer restricted school area (classrooms) to facilitate answering for our respondents. The restriction on where and when the survey could be answered further limited the potential number of participants.

Another limitation of the study is the homogeneity of the participants, all being economy students on university level. The homogeneity is intentional as the familiarity with financial information is a requisite for the testing of our research question. Some measures are made to control for the similarity to the entire population. However, general implications for society as a whole would need a representative group of the population.

1.5 Expected contribution

Through the availability of regulated templates and data from our survey we are able provide a contribution concerning how presentation of fund information affect individual working memory. Also, if there is a relationship between working memory and an individual's understanding of financial information. A deeper understand of memory could challenge the common assumption that investors always have all the information available when making decisions. On an individual level, perhaps individual investors awareness of their limitations in memory.

Depending on the nature, potential findings might be used as an factor when analysing how to design communication of financial information. The financial institutes offering funds and other financial instruments might also benefit from the conclusions of this research. If there is

an optimal design for fund information to processed it would be beneficial to use this design to make the clients recall the specific opportunities you offered when facing multiple competing offers.

1.6 Disposition

The following disposition of our thesis has been used: Chapter 1: Introduces the background of the market, purpose and the two research questions of the study. Chapter 2: Elaborates on research between the two different fields of study (marketing and psychology) and introduction of hypotheses. Chapter 3: Introduces the quantitative method and approach of data collection and intentioned analysis using the structure of our survey as a structure. Chapter 4: Results from the conducted analysis. Chapter 5: Discussion of the results and potential implications. Chapter 6: The references of research used in the study is presented. Eventually, the entire survey used in the data collection is included In Appendix.

2 Theoretical framework

In the next section, we present the relevant research within the area that we have used when generating hypotheses on how memory and choice architecture are related. The overview will begin in part 2.1 with a historical review of important chapters of memory research. Part 2.2 will continue presenting a review of modern economic psychology and cognitive capability research.

2.1 Memory

The human memory could be compared to a computer since both processes, codes and stores information. The storage on the hard drive could be referred to as the long-term memory and the RAM memory, the amount of information that can be contained at the same time, is the working memory.

2.1.1 Overview of memory research

Human memory as a subject of interest among psychology researchers dates back to the 1950's with a bulk of scientific findings where the 1960's could be described as the golden age of memory research. An important distinction made in memory research was the introduction of a dichotomy between short-term memory (STM) and long-term memory (LTM) presented by Broadbent (1958). While facing opposition against dichotomizing, with Melton (1963) being a key opponent, the dichotomy continued to win support and was further developed by Atkinson and Shiffrin (1968), among others. The dichotomy continued as an accepted outline in memory research as it is seen as a more useful approach to analyze data. One typical kind of research that examines the differences between STM and LTM is usually performed by presenting a participant with information and then after various delays in time (e.g. seconds) asking the participant to repeat the information initially presented (Peterson, & Peterson, 1959; Milner, 1968).

STM, contain information for a short period of time and is activated as the material in the sensory store is acknowledged in any way (Craik, & Lockhart, 1972). LTM consists of three parts, where one is particularly important for this study, the semantic memory. It is the component of long-term memory necessary for the use of language (Tulving, 1986).

The transfer of information to the long-term memory was believed in the 1960s to be enhanced through retaining the information for a longer period of time in the short-term

memory through repetition. The longer time the information was sustained in the short-term memory, the greater the chance was for transfer into the long-term (Broadbent, 1958). However, as research got more refined the process regarding how memory is transmitted between the storages became a subject of questioning. Research concerning a difference between short-term and long-term learning questioned the earlier view of an automatic move from STM to LTM, hence simple repetition is not an insurance to long-term learning (Craik, & Watkins, 1973). In light of the critique a new theory emerged stating that the transit into long-term memory is depending on several various variables. The transfer between storages is dependent on the depth of processing of the material in the short-term memory (Craik, & Lockhart, 1972). Depth is determined by the level of processing of material, as when studying for a test only reading a text multiple times will not transfer it to the LTM, in contrast to using a technique to understand what it is you are reading, meaning repetition without intention to learn will not facilitate learning (Tulving, 1966).

2.1.2 The emergence of working memory

In their work, Atkinson and Shiffrin (1968) emphasized previous research made in the earlier part of 1960's which proposed a further division of the short-term memory into two kinds of separate systems, sensory registers which were believed to feed into a unitary short-term memory representing the working memory. The three generally accepted overall memory storages are the sensory register, STM and LTM (Murdock, 1967). Sensory register entails information retrieved by our senses, for example as we notice an aircraft through our hearing and sight. It is "pre-attentive", meaning it will occur in a situation regardless of whether the event is explicitly paid attention to or not (Neisser, 1967). However, the unitary short-term working memory was soon overruled as research found the working memory constituted by three systems, a central executive, the phonological loop and the visuospatial scratch-pad (Baddeley, & Hitch, 1974). Below a summarized, definition of the components are presented (Baddeley, & Hitch, 1974):

The phonological loop: Believed to consist of a short-term store able to briefly hold and maintain simple memory traces.

The visuospatial scratch-pad: A spatial and visual component of the working memory with a limited capacity.

The central executive: Functions as the central processor of the working memory. If faced with a more cognitive demanding task in need of greater information processing the central executive coordinates between the phonological loop and the visuospatial scratch-pad.

Collectively the working memory is put to use during cognitive task such as problem solving and reading (Baddeley, 1983; Baddeley, 2003). The processing of information in the working memory differ between various format of the presentation. Research shows that semantic (written) and visual information is encoded differently in the memory. Semantic information requires effortful processing, a person must rehearse this information and the encoding is intentional (Tulving, 1966). In contrast, visual information is encoded into the LTM through automatic processing, which occurs without intention (Passer, & Smith, 2004). Research concerning limitations of the working memory continued to fill in the blanks regarding memory capacity, especially two important aspects of limitation were presented, storage limitations and information processing limitation. In multiple studies Baddeley has shown that information is possible to retain temporarily in the working memory through repetition, the information will then be lost as repetition ends if it is not transferred to LTM (Baddeley, 1983; Baddeley, 2003). In an unpublished study Baddeley and Lewis tested the information processing and identified a slowdown as the memory load increased, however the accuracy remained unchanged until the load reached between 6 to 8 bits, where a bit is equal to a separate piece of information (Baddeley, 1983). The findings further strengthen the conclusions of the famous article "The Magical Number Seven Plus or Minus Two" (Miller, 1957) arguing that the human mind can process between 5 to 9 bits of information.

2.1.3 Memory in marketing

Memory has in recent years grown to be a common variable within marketing research in several aspects[3]. It is a commonly measured in advertising research where a typical study would involve a questionnaire or an experiment in which participants are presented with information that have been somehow manipulated, and are asked to repeat the information (Baack, Wilson, & Till 2008; Lehnert, Till, & Carlson, 2013). The data is then measured with memory as either an independent or dependent variable. Another common application of memory as an intermediate variable is within communication strategy. In a review article of 250 journal articles and books, Vakratsas and Ambler (1999) seeks to identify the key

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[3] We found 346 hits when searching for the articles including memory in Journal of Consumer Marketing.

determinator's of the marketing effects. As consumer behaviour depends on cognition, affect and experience, memory is identified as an intermediate. "...the consumer's mind is not a blank sheet awaiting advertising but rather already contains conscious and unconscious memories of product purchasing and usage" (Vakratsas, & Ambler, 1999). The interpretation as marketing is affecting consumers' levels of processing causing a specific product to be memorized is further applied in other areas within marketing research. E.g. some modern research measuring the effects of creativity has on the processing of the material. One example is Rosengren, Dahlén and Modig (2013) who investigated if advertising creativity increased consumers' processing by examining how long their participants studied the different types of advertising (creative and not creative), which it did according to their results. Today effectiveness of advertising is commonly measured with attention, comprehension and of course recall (Rosengren et al., 2013).

2.1.4 Memory and decision making

The relationship between working memory and decision making has been investigated clinically by Bechara et al.(1998). Their aim was to address a question that had not been considered before: is the part of the brain that is necessary for working memory (the dorsolateral prefrontal cortex) also necessary for decision making? They studied patients with impaired working memory and or decision making against a control group who had both a healthy working memory and decision making abilities. They found an asymmetrical relationship between these two; working memory is not affected by damaged decision making but decision making is affected by impairment of the working memory (Bechara et al., 1998).

In the testing of the visuo-spatial scratch-pad, a component of the working memory, Brooks (1967) identified an increased recall as the material presented was structured compared to a non-structured presentation of the same information. If recalling more is connected to a better decision this might imply a connection between the structure of information, the choice architecture, and recall in the working memory.

2.2 Cognitive capability

In a seminal paper Gobet and Simon (1998) investigated the effects of knowledge on memory. They studied chess player's ability to recall in relation to their ranking, with ranking referring to their level of skill in chess measured in international standards. The study included three different groups of players, determined by their levels of skill, and compared recall of chess

pieces' positions on a board between the groups. They showed that the highest ranked players: the masters, could recall 92% of the positions if the presented positions could occur during a game, the players of medium ranking: the experts could recall 57% and the lowest ranked among the participants was the class A players and they could recall 32%. It was clear that the more experienced players could recall more. But what is perhaps most interesting is that these figures drop remarkably for all players when the positions were random, ergo positions that cannot possibly occur during a game. The recall was as low as 19% for masters, 14% for experts and 12% percent for class A players (Gobet, & Simon, 1998). Similar tests have been performed in other settings, Recht and Leslie (1988) found a significant effect of previous knowledge of baseball when that students were asked to read a text about baseball and later verbally recall the text. Previous knowledge concerning the recognition of words is coded in the semantic memory of the participant and will work explanatorily when examining previous knowledge as a predictor of recall in our study (Tulving, 1986). Based on these findings it could be argued that people with some previous experience and knowledge about fund information will recall significantly more real existent fund information (e.g. financial terms) than non-existent fund information (e.g. terms that are completely made up). However, this has not been tested.

2.3 Financial literacy

Financial skill can be measured as financial literacy. There is not one general definition for the term financial literacy, which is the main critique against the measurement. It has been seen a vague concept (Fernandes, Lynch, Jr. & Netemeyer, 2014; Huston, 2010) but Lusardi and Mitchell developed a set of questions called the "big three" (Hastings, Madrian, & Skimmyhorn, 2013) which has helped standardize the measurement. We will use Huston's (2010) definition "financial literacy could be defined as measuring how well an individual can understand and use personal finance-related information" since this definition is clear and does not contradict older definitions as well as works well with the "big three" that will be used in our survey (Huston, 2010). Financial literacy is measured by a set of questions covering, interest, risk diversification and inflation (Hastings et al., 2013). The question about inflation is the one most Swedish citizens get wrong (Almenberg, Lusardi, Säve-Söderbergh, & Vestmanal, 2015). This is probably because we have not experienced any inflation shocks during the past 25 years (Statistics Sweden), countries with experience of hyperinflation usually perform better than average on the inflation question (Klapper et al., 2015). The relationship between skill level and the ability to recall the chess pieces' positions that Gobet

and Simon (1998) found would imply that people with at higher level of financial skills would recall more fund information.

According to a survey by Finansinspektionen (2015) six out of ten are financially literate in Sweden, which is quite high since the country levels of financially literate inhabitant ranges from 1 out of 10 to 7 out of 10, international surveys claims the Swedish population is among the most financially literate in the world (Klapper et al., 2015).

2.4 The role of presentation format

Decisionmakers are affected by various features upon choosing between multiple alternatives in an environment. How choices are made *"depends on the nature of the alternatives as well as on the ways in which they are presented or displayed"* (Tversky, 1969). Using the definition made by Thaler, Sunstein and Balz (2014) the environment, thus how the choice alternatives and information is presented is commonly referred to as choice architecture and the person creating the environment a choice architect.

Research on the choice architecture's effect upon choice has typically been made in experiment settings using existing market material. The concept of choice architecture has been applied within public policy research where Thaler et al. (2014) introduced a new philosophy they named libertarian paternalism. The belief of libertarian paternalism is to through choice architecture assist individuals into making better choices. The interference in the choice architecture to affect choice is commonly known in modern economic behavioral research as nudging. It can be used upon complex choices were not a simple yes/no answer is applicable, people tend to prefer choosing a default option in a complex decision (Thaler et al., 2014). For example, a default option in a restaurant setting could be choosing the chef's recommendation from the menu (Thaler et al., 2014).

The research concerning choice architecture has moved into public policy and situations where individuals are expected to actively make a complex choice. The studies on task structure in financial settings usually tend to focus on an individual's understanding of probabilistic information, as a function of how the information is structured and presented (Stössel and Meier 2015; Vlaev, Chater, & Stewart, 2009; Weber, Siebenmorgen, & Weber, 2005). A typical study would here include the reasoning and choosing of pension funds. In a study on presentation of pension funds the effect on how and where information was

presented showed to have implication on decision in regards of accessibility to information and how the options of funds were compared (Foster, Ng, & Wee, 2015). Further contribution concerning structuring of fund information in light of people's preferences was made by Vlaev et al. (2009) who suggested to include an interval between a minimum and maximum, with the arithmetic average highlighted in between. Stössel and Meier (2015), identified that people tend to have a difficulty in determining risk and usually tend to underestimate risk while overestimating return. This finding is consistent with the one made by Newall 2016 where individuals were presented figures of return in a sequence of +x% followed by –x% (or vice versa). Even though it would result in a negative overall return, many individuals assumed such changes would offset each other, an effect moderated by financial literacy (Newall, 2016). A further finding was that risk perception has an influence on risk taking behaviour where a higher risk perception leads to a less risk taking behaviour (Stössel, & Meier, 2015).

Research has shown a positive correlation between a lack of financial understanding and making less beneficial financial choices in mortgage as well as a difficulty in the probability understanding of risk (Gerardi et al., 2010; Stössel, & Meier, 2015). Furthermore, an implication from studying the financial crisis in 2008, the lack of ability among individual investors to assess the risk on subprime mortgages has been identified as one of the factors causing the bubble to burst (Gerardi et al., 2010; Stössel, & Meier, 2015).

2.5 Hypotheses

We wanted to test what would happen if the participant was faced with a distraction after the stimulus. The distraction would prohibit the participants from repeating and intentionally process the information from the stimulus.

	Hypothesis
H1	Participants will recall less if a distraction has been presented after the information.

Since we decided to use financial literacy as a moderator we were also interested in testing if the memory of a participant could help explain if they are financially literate, more specifically we wanted to see if higher working memory would increase the probability that

the participant is financially literate. Relationships between working memory and financial ability has been found in clinical research (Earnst et al. 2001).

Hypothesis
H2 The higher working memory a respondent has, the probability of financial literacy is increased.

Since research has shown that visual information is processed and stored automatically while semantic information requires effort to process (Passer, & Smith, 2004) we wanted to test if our participants would recall visual stimuli to a greater extent than semantic.

Hypothesis
H3 Participants will recall information presented in a visual format to a greater extent than semantic information.

The discovery that the more skilled chess players in Gobet and Simon's (1998) study could recall more than the players with a lower ranking inspired us to create our fourth hypothesis where we will examine whether there is a relationship between financial literacy and the ability to recall fund information. We believe that economic education is not the most homogenous measurement on a person's financial understanding since the education can vary at different schools both in quality and quantity. It can even vary a lot in the same school in different years. There has also been proven that studying finance does not automatically make the individuals financially literate (Mandell, & Klein, 2009). With this in mind we have decided to test the participant's financial literacy. Despite the usually high rates of financial literacy we hope to get a big enough groups so that we can test if the financial literacy affects the participant's ability to recall fund information.

Hypothesis
H4 Participants that are financially literate will recall more fund information than participants who are not.

As previously mentioned we are going to examine if the effect Gobet and Simon (1998) discovered with the random positions of the chess pieces versus the actual game positions also applies in our field of research. We are going to present both real and non-existent financial terms to our participant to find out if being financially literate will lead to the participants recalling more of the real terms because of their ability to understand the words. We will also test if the group of financially literate participants will recall more real words than the participants who are financially illiterate. This leads to our fifth hypothesis:

	Hypotheses
H5a	Participants who are financially literate will recall real financial terms to a greater extent than non-existent financial terms.
H5b	Participants who are financially literate will recall more real financial terms than those who are financially illiterate.

A summary of our hypotheses can be found in the table below.

	Hypotheses
H1	Participants will recall less if a distraction has been presented after the information.
H2	The higher working memory a respondent has, the probability of financial literacy is increased.
H3	Participants will recall information presented in a visual format to a greater extent than semantic information.
H4	Participants that are financially literate will recall more financial information than respondents who are not.
H5a	Participants who are financially literate will recall real financial terms to a greater extent than non-existent financial terms.
H5b	Participants who are financially literate will recall more real financial terms than those who are not financially literate.

3. Method

3.1 Scientific approach

A deductive approach has been used in this study, which has allowed us to make use of previous memory and financial behavioural research to establish a framework for our hypotheses (Bryman, & Bell, 2015). The relationship between recall and the consumer's ability to understand fund information has never been tested before. To assure external validity in another setting the majority of the stimuli used in the study has been tested on consumers prior to this study and are currently used by all actors offering PRIP's in Europe. By using previously tested stimuli (e.g. KID) we are able to investigate whether financial memory could be relevant to consider when formulating fund information.

3.2 Participants

To investigate the effect prior experience and understanding of a subject, in our case fund information, might have on recall (Gobet, & Simon, 1998), we recruited participants familiar with fund information. Due to convenience and the possibility to access facilities offering a controlled testing environment we chose to only use students who are currently studying economy or business on university level.

In total 51 participants where 26 were female[4], answered our survey under our surveillance. The youngest participant were 18 years old and the oldest were 38 years old[5]. They were recruited both at Stockholm School of Economics (n= 37) and at Södertörn University (n=14). They were all rewarded for their participation with a smaller goodiebag. We consciously choose to variate the times during the day when the experiments were carried out to avoid any impact of fatigue or hunger inflicting on the data.

About 84% of the participants stated that they were currently saving money in some form. There were three forms of savings that were most common among our participants; savings account (57%), funds (57%) and stocks (42%). That the majority of the participants saved in funds is not surprising since it is consistent with previous research of the Swedish people (Swedish Investment Fund Association, 2016).

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[4] male (n=24) and non-binary (n=1)
[5] Mean value=23.10 and S.D.3.90.

3.3 Pre-test

To make sure that the participants would understand the questions and the instructions in the survey a pre-test was performed with a few (n=3) participants. These participants were not allowed to participate in the real survey because their previous exposure of the stimuli could have affected their recall. During the pre-test, all these participants performed the survey with at least one of us in the room and was instructed to tell us whenever anything was unclear. The feedback from the pre-test concerned some of the instructions that needed clarifications. We added some explanations and directions to improve these aspects.

3.4 Procedure and materials

The experiments were run on a computer, either the participants own computers or ours. The participants were all under our surveillance in a classroom where they were not allowed to talk to each other or use any aiding devices neither digital nor analog (e.g. notepad). The study was designed as a survey. The completion time ranged between 17 and 83 minutes with an average of 38 minutes.
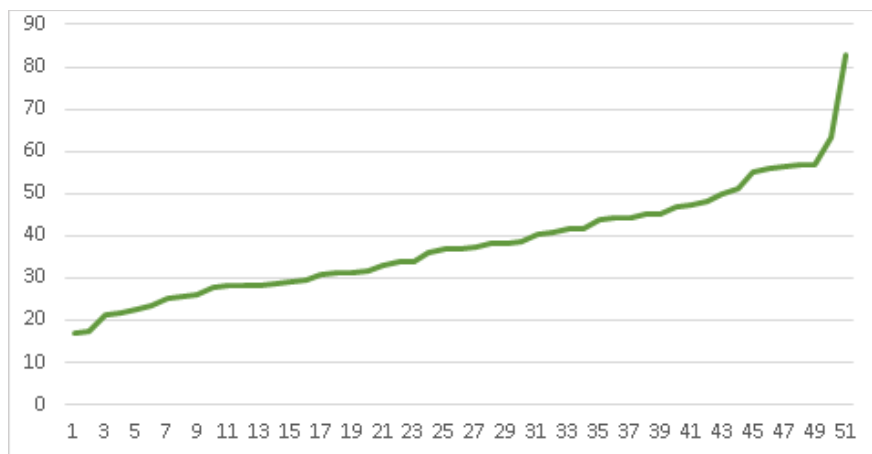
Figure 2. Survey duration in minutes for each respondent.

Figure 2 shows the distribution of time spent taking our survey, as we can see that the spread was quite large with some more extreme values at the end of the spectra. The mean value was 38.13 minutes and the standard deviation 12.93 minutes. Despite the differences in time all participants were included since we saw no clear indication of time affecting the answers. The main survey will now be described in detail in the following sections.

3.4.1 Introduction

The survey started off with a smaller introduction that told the participant that he or she would now be a part of a study on financial memory and how it can be compared to the general memory. They were told that the survey would consist of seven parts where five would investigate the participants general and or financial memory.

3.4.2 Part one - Working memory test

Then the survey starts with a test of the working memory (WM) of the participant. The benefits of measuring working memory were two folded, within the survey we used it to compare against financial working memory, while it was also used to see if our respondents deviated from previous research in working memory. To assure a correct measurement of our participants working memory we have used a well-established method among memory researchers (Miller, 1957).

When measuring working memory, the participant was presented with a video where they got to see a sequence of numbers, each number was shown for two seconds before it disappeared and replaced by the next number. In the first video the sequence consisted of three numbers, in the second video there were four numbers etc. One number is added for each video, in the sixth and last video there were eight numbers. The decision to stop at eight numbers was made according to previous research by Baddeley (1983) suggesting a max capacity of six to eight digits in the working memory. Further, as the survey was long we wanted to avoid losing the participants focus. The numbers displayed in the videos range between 1-9 and the order was decided by the help of a computerized randomizer. Each video consisted of different order of numbers. All participants were presented the same set of videos in the survey.

The participant was asked to watch the video and repeat the numbers in the same order as they saw them in the video. The videos were shown one at the time and the space where the participants were asked to repeat the number sequence in the correct order was on a separate page from the video. The participant needed to press next to get to this space, this assured that the participant was unable to type in the answer while watching the video. This part of the survey aims to help to test H4.

The coding of the results separated each participant into one of seven levels of working memory. A participant with a working memory on the first level did not recall the three numbers presented in the first video. This was interpreted that the participants working memory could hold less than three digits, regardless if the participant managed to answer any following video correctly. The measuring method used was consistent with modern measurement, e.g. Wechsler (2008). However, it is possible that this participant might have accidently missed this video or question in some way. This is a limitation for all of these working memory questions since the participant was eliminated when making the first mistake regardless of the performance in following videos. Continuing, a level two participant managed to recall three digits but not four, level three participants could recall four digits but not five and so on until the last level; level seven where the participants recalled eight digits. The highest number of digits each participant could recall correctly determined its level of working memory, in accordance with the standards in clinical psychology (Wechsler, 2008).

3.4.3 Part two - Understanding vs. working memory

In the second part of the survey the participant was first introduced to twelve financial terms that can be found in an investment fund setting. These were presented in three columns and the participant was informed that they were expected to repeat these terms on the next page. When finished with studying the terms at their own pace they would click the button that took them to the following page where they were met by a space and asked to recall the terms they just finished studying.

Then there is a page break and the participant is presented with 28 terms both fake and real and he or she was expected to tick the boxes of those terms they saw on the previous page. On the following page, they met twelve new terms all based on the former twelve but these were all non-existent financial terms that were made up by us, but the participant did not know this. For example, Andersson-belopp instead of Norman-belopp (a Swedish term introduced as the financial minister at the time (Norman) wanted a figure communicating cost). The rules for the non-existent financial terms were the same as before, the participant was expected to study these terms and then repeat them in the same way as they did with the real words as well as ticking the correct boxes. The purpose of this part of the survey was to test H5a and H5b.

3.4.4 Part three - Semantic memory

Here the participant met semantic information put in natural investment fund context. To make sure that the participant fully understood the issue at hand it started with an example question where a table with fund information is displayed and on the next page the participant was asked to choose the correct deposit fee among five alternatives. The participant received immediate feedback of the result from this introductory question, if they chose the wrong answer the table is once again displayed with the correct answer clearly marked. The result from this question was excluded from the dataset of our analysis.

Then the real test began. The participant was asked to study a few paragraphs about investment strategies of a fund, taken from a KID. On the next page a box awaited where the participant was asked to write down everything they could recall. Here we used free recall to see which information that they could recall. Next, they were presented with investment fund information in a web-based format. Here, most of the information was presented in tables. On the next page the participant was asked to answer questions about the text, these questions were of the probed recall kind. The participant was asked whether or not certain terms were present in the web-based format they saw before. Then they were asked rate how sure they were of their answer on a scale of one to seven where one is "very unsure" and "seven is very sure". If the participant answered that the information in question was present in the web-based format, they were asked to repeat the value (e.g. interest rate). In total, there were three questions as the one we just presented, where two were present in the web-based format and one was absent. The next format that was studied displayed fund information in an app-format. Here, some basic facts about a fund was displayed and on the next page a question per fact was asked and the participant was asked to choose the correct answer among five alternatives. The participants were also asked to rate how sure they were of their answer on an identical one to seven scale as before. This part of the survey will help us judge how the participant's recall of semantic information is compared to their visual memory, thus it will be a part of H3.

3.4.5 Part four - Visual memory

In the fourth part of the survey the participant's visually encoded memory was tested. The participant was shown visual stimuli in the form of both graphs (n= 6) and SRRI scales (n=4) in KIDs one at the time. The participant was shown a graph and on the next page he or she are asked to choose the correct graph (the one they were shown on the previous page) among five.

Then they are asked to rate on a scale of one to seven how sure he or she is of their answer on the previous question. Before answering half of the questions connected to stimuli, three graphs and two SRRI scales, the participant was faced with a distraction before being able to answer the question about the stimuli. The participant was not informed that this was a distraction, they were told that this was a part of the survey. This distraction consists of five statements on decision making where the participant was asked to answer how much he or she agreed on a one to seven scale where one equalled "do not agree at all" and seven equalled "totally agree". After this distraction, the questions were displayed. All of the participants got to see all of the stimuli (n=10) and answer all their respective questions but the order of the stimuli was randomized. This part of the survey was aimed to test H3 and H1.

3.4.6 Part five - The non-regulated stimuli

In this part of the survey the intention was to put the research into a more practical context. A stimulus similar to an advertisement about a fund for a fictional company who claimed to have superior pension fund. This was a non-regulated stimulus different from the other formats tested in the survey. The participants were presented two versions of the stimuli, one where the information was presented semantically and one where it is a more visual display. One version is presented at the time and afterwards they are asked to freely repeat all that they can recall about the stimulus. This part of the survey was aimed to test H3.

3.4.7 Part six - Financial literacy

In part six the participant was asked to answer three classical questions that are used to determine if a person is a financial literate. In order to be declared financial literate the participant had to answer all three questions covering, interest, risk diversification and inflation correctly. We used these so called "Big Three" questions developed by Lusardi and Mitchell that today are seen as an international standard to use when measuring financial literacy (Hastings et al., 2013). This part will be included when testing H2.

3.4.8 Part seven - Demographic

In the last part of the survey the participants were asked demographic questions (e.g. gender, age etc.) to give us a better view of who they were. This part was done mostly out of curiosity, perhaps to discover correlations we had not thought of before the survey, but it also helped us make sure we have a statistically representative sample.

3.5 Variables

All the questions about recall in the study, apart from the five free recall questions, are multiple choice questions with one correct answer. In the data, the variables have been coded into dummy variables where a correct answer is denoted as a one and incorrect answers as a zero. The variable for financial literacy has also been coded as a dummy variable where one means that the participant is financially literate (answered all three financial literacy questions correctly) and zero means that the participant is financially illiterate (answered one or more questions on financial literacy wrong). The variables describing whether a participant owned stocks or funds are also coded as dummy variables where one means that the participant owns the product in question and zero that they do not own it.

There are five questions in the survey testing free recall where the participant is asked to write everything they can recall of the material they previously studied in an open essay text box. This data cannot be coded as easy as the multiple-choice questions so we built a set of rules on how to score the data. In the first two questions of this kind the participant was asked to repeat as many terms as they could of the twelve terms they had previously been shown. If the participant had stated a correct term, minor spelling mistakes were forgiven, they were rewarded with one point. If it was clear which word the participant meant but there were more major spelling mistakes the participant received half a point. In the other three questions where the participant was asked to write all they could recall in free text the rules had to be a bit different since they had studied paragraphs of text from a KID and from two ads. They now received one point for a correct statement, not necessarily a whole sentence, and half a point for stating a correct stand-alone term. To avoid any bias from our part to affect the results we asked two independent individuals who are students at two different schools to separately score the participants' answers according to these rules (the rules can be found in the appendix). Then we took the scores and calculated the mean value for each participant on each question and that became their score.

We developed a total score for the financial working memory by giving the participants one point per correct answer on all the questions testing the financial working memory, this gave a total score of 71 points of the probed recall and recognition questions plus the participant's score from the free recall questions which had no maximum score as the participants were free to write as much or as little as they could. For example, the best participant got 87.25

point where 19.25 of the points were from the free recall and 68 points were from the probed recall and recognition questions were 71 was maximum. This score was used to give us an indication of the participants financial working memory.

3.6 Reliability and validity
3.6.1 Reliability
Reliability measures to what extent we get the same result from several measurements. High reliability is needed to induce certainty about our results. We could not ask the participants to do our survey again a few weeks later since it took so long time and since it was anonymous. Instead we tried to gain reliability by internal consistency. There were several questions examining the same measure included throughout the survey to get internal consistency. As we seek to compare participants recall of fund information presented in different formats it was prioritized to include multiple stimuli to control for unintended errors made by the participant. Further assuring reliability, the section of visual stimuli was randomized in the survey to avoid any effect of time, in the beginning the participant might have been more focused than later on in the survey and we did not want this to affect the answers. The reliability for the measurement of the distraction also benefitted from the randomization because the participant did not know if the next question would include these questions that were used as a distraction. Thus, they did not know for how long they needed to store the information and increase the overall incentive for a greater processing of the information.

One of the two kinds of visual stimulus, a graph displaying a funds historical return were tested using three questions with a distraction and three questions without distraction. The same procedure was used testing the recall of four SRRI-scales, two with distraction and two without. Through the inclusion of several similar questions any potential mistakes made by the participant will only have a limited the effect on the data. If a mistake was made it would affect the total score but only to a limited extent as more questions allowed remedy for the participant.

The scoring on financial working memory on the free recall questions in the survey was made by two individuals who independently coded our data. Without knowing about our hypotheses, the two individuals coded the data on free recall from section two, three and five of the survey. They coded the questions with the help of instructions from us. An average of their score on each question was later calculated and included in our participants total score of

financial memory. The intention by using independent individuals to set the scores was to decrease possible biases in scoring and to ad reliability of the measurement.

3.6.2 Validity

Validity is supposed to reflect to what extent we measure what we intend to measure. A low validity would mean that the results are distant from the real world and would the study would lack practical relevance. To ensure validity we have taken all of our fund information from real market examples. The formats for this information has also been different (e.g. app-based, web-based, KID, visual and semantic) to ensure that our results are relevant for different parts of the fund market. In the measurement of visual memory, we made use of two separate stimuli collected from a KID document (standardized by the European Union). The decision to use a standardized template from a KID document was made to increase validity by actually using the format that is a standard in the market. Thus, if we were able to see any effects of financial literacy or the presentation format for recall of these stimuli our results would be applicable to the market.

The measure of the participants working memory was made using a standardized method within memory research and can thus be considered to have a validity. Through using a standardized method any deviations from what ought to be in the distribution of our participants working memory will be detected. (Miller, 1957; Baddeley, 1983).

4. Results

In this section we analyse the results and test our hypotheses. Additional findings will be included. We will start by presenting the results from each part of the survey in chronological order. In the other half, we will further investigate the relationship between memory and presentation of fund information, and also test for the effect of financial literacy by analysing data from the whole survey.

4.1 Summary of descriptive statistics

In table 1 an overview of the descriptive statistics for the numerical variables used in our analysis is provided. These variables are used to measure the correct answers on different questions and the respondent's age. All the respondents answered all the questions.

Table 1. Descriptive data of survey variables

Variable	Minimum	Maximum	Mean	Standard deviation
Age	18	38	23.10	3.90
Working memory	0	8	5.98	1.48
Real terms	2	12	9.78	2.50
Non-existent terms	2	12	8.39	2.63
Visual	3	10	9.10	1.40
Semantic	4	13	9.98	2.49
Distraction	3	5	4.57	0.67
No distraction	0	5	4.53	0.95
Financial working memory	17	87.25	59.76	16.60

In table 2 a summary of our binary variables used in the data analysis of this thesis are displayed. These variables are coded as 1 if the participant belongs in the group (e.g. is financially literate) and 0 if the participant is not part of the group (e.g. financially illiterate).

Table 2. Frequencies of survey participants

Variable	In group	Not in group
Financial Literate	33	18
Owns funds	29	22
Owns stocks	30	21

4.2 Results by part

4.2.1 Part one - Working memory test

To measure the ability of the participants to store information in their working memory, we considered how well they recalled the digits in the six tasks. For this measurement, we will use the results of the videos to create the seven levels of working memory presented in method 4.4.2. In short: The participants with a working memory on the first level (n=1) were not able to recall the three numbers in the first video, this means that their working memory can hold less than three digits. Level two participants could recall three digits but not four (n=2), and so on. The highest number each participant could recall correctly decides which level of working memory they have in accordance with the standards in clinical psychology (Wechsler, 2008).
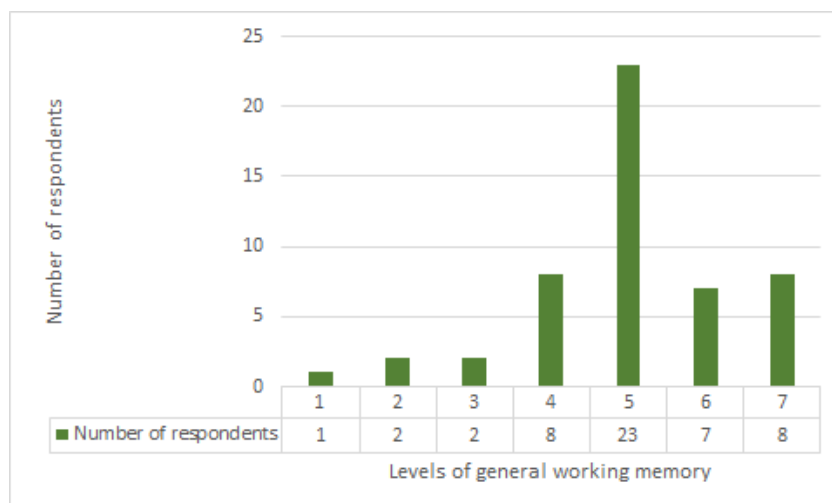

Figure 3. Distribution of digits remembered by the respondents.

Figure 3 shows the distribution of the participants in the different levels of working memory. It is evident from the graph that level five (n=23), where the participant recalled six digits,

were the most common level. The average number of digits recalled where 5.98 with a standard deviation of 1.48.

These results were consistent with both Miller's (1957) and Baddeley's (1983) findings; that the limits for our processing is seven plus or minus two objects at the same time and that our working memory can store 6 to 8 digits. In our study, almost half of the participants recalled 6 digits (level 5) at the most. A few of the participants (n=13) were outside Baddeley's spectra of working memory. Even fewer were outside Miller's spectra of working memory (n=5) of seven plus or minus two. The spectra are in this context classified as "normal" capacity limit to hold information in the working memory.

4.2.2 Part two - Understanding vs. working memory

The comparison between understanding and working memory is intended to answer whether there is a relationship between recall of fund information and working memory. From the initial study of the descriptive data a tendency was identified: the participants tended to recall more real financial terms than the non-existent. The mean value for the real words recalled were 6.36, standard deviation 3.28. The mean value for the non-existing words were 5.42, standard deviation 3.00. In the boxplot in Figure 4, the number of recalled words on the vertical axis, the small difference in frequency is made more obvious. However, these interferences of the range indicates that the difference is not significant preventing us from making any conclusions regarding the participants ability to recall real financial terms in relation to non-existing financial terms.
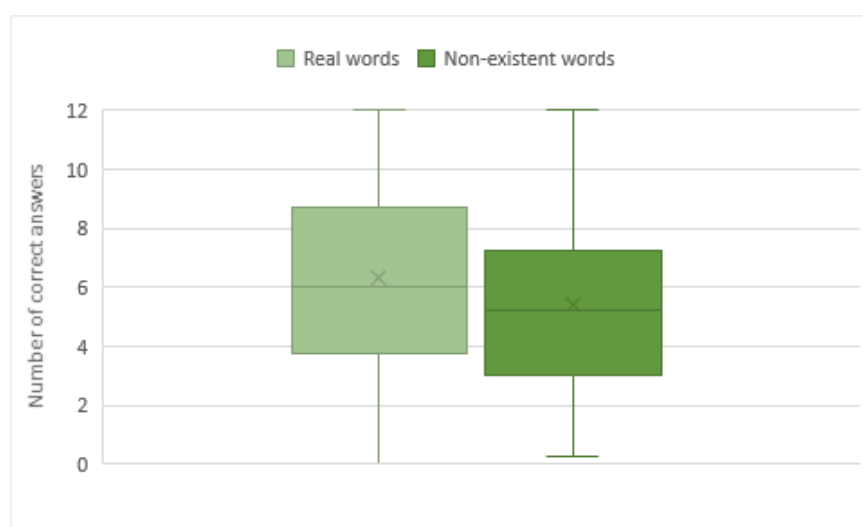

Figure 4. The distributions of correct answers for real terms and non-existent terms.

To test whether the difference in the recall of real financial terms and non-existent financial terms is significant a Wilcoxon signed ranks test was used. Here all participants are measured on which of the terms they recalled more; either real financial or non-existent financial terms (or if the terms were recalled to the same extent). Negative mean ranks (non-existent financial terms < real financial terms) was 24.79 (n=36) and positive mean ranks (non-existent financial terms > real financial terms) 18.85 (n=10), ties (n=5), p <0.01. The interpretation is that more of the participants could recall the real financial terms correctly to a greater extent than non-existent financial terms. The result from the Wilcoxon signed ranks test show a tendency to recall more real financial terms than non-existent financial terms.

4.2.3. Part three - Semantic memory

There were thirteen semantic questions with probed recall or recognition. On these thirteen questions 61% of the participants had 11 or more correct answers. Two participants had answered all of these questions correctly. The mean value was 9.98 and the median 11, standard deviation 1.74. The lowest amount of correct answers was 4 (n=3).

The one semantic question where the participant was asked to write all information they could recall from a KID, thus a free recall question. The participants achieved maximum score was 8 and the minimum was 0. Mean value was 3.50 and median 4, standard deviation 2.24. This question is one of the questions that we asked other students to score. The distribution of the participants scores are shown in figure 5 where we can see that even though five participants got the lowest possible score (0) most of the respondents are distributed among the upper half of the score of correct answers.
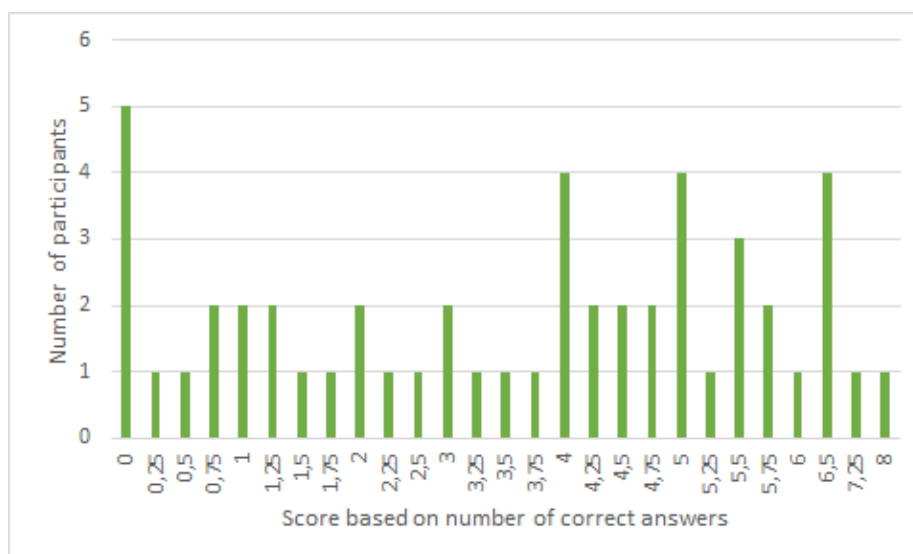

Figure 5. Score distribution on free-recall question

4.2.4. Part four - visual memory

According to the data, the participants generally had no trouble recalling visually displayed information. For four out of six graphs, 92% of the participants answered correctly, on the other two graphs 90% gave a correct answer. On the other stimulus of the SRRI-scale, participants recalled between 84-94% correctly. As the correct answer to each question was in a multiple-choice setting of five alternatives, the probability of making the correct choice simply by chance was 20% for each question.

No effect of the distraction was found, the stimuli was recalled to the same extent, actually a little bit more, as when no distraction was showed. A Wilcoxon signed rank test was performed between the correct answers of the questions with a distraction and the corresponding questions without distraction.

The test showed that the positive mean ranks (distraction > without distraction) 12.05 (n=11) were higher than the negative mean rank (distraction < without distraction) 10.95 (n=11). The similarity in the result is also evident with a majority answering equally well, reporter as ties (n=29). However, the test was not significant so we cannot draw any conclusions about this relationship. As we could not find any support for H1.

4.2.5. Part five - The non-regulated stimuli

Through presenting fund information in two new stimuli the intention was to control differences between the participant's free recall when presented semantic or visual information. The mean value 3.50 and the median 4 was higher for the more semantic non-regulated stimulus, standard deviation 1.82. For the more visual non-regulated stimulus the mean value was 2.88 and a median of 2.50, standard deviation 2.14. But the maximum score was higher for the visual non-regulated stimulus 7.25 than for the semantic 6.

4.2.6. Part six - Financial literacy

In part six of the survey we tested if the participants were financially literate or not with three standardized questions. The data showed that 33 of the 51 participants answered all the three questions that determine financial literacy correctly, thus they were financially literate. These results are consistent with previous research where 6 of 10 (60%) in Sweden are financially literate (Finansinspektionen, 2015; Klapper et al.,2015).

The financial literacy question that most participants (n=9) answered wrong were the one below about inflation and interest rate[6]:

Assume that the interest rate on your savings account is 1 percent per year and inflation is 2 percent per year. If you leave your money on this account for one year, will you be able to buy more, as much, or less for your money at the end of the year?

It is no surprise that this question was the hardest, previous studies on financial literacy in Sweden has shown the same results; inflation is hard for people in Sweden (Almenberg et al, 2015).

4.2.7. Part seven - Demographic
These results can be found in the method section under 4.2 Participants.

4.3 Financial literacy and working memory
In the measuring of the relation between financial literacy and working memory the participants were divided into groups (financially literate or illiterate) and then compared. Using descriptive data, of the 18 participants who were financially illiterate 56 % had a working memory on level 4 or lower, the corresponding value for those who were financially literate were 9%. The frequencies for the level of working memory for the two groups (financially literate participants and financially illiterate participants) are shown in Figure 6. By interpreting the model, we saw a the tendency among the financially literate to have a high level of working memory, causing the distribution to be skewed to the right. Among the financially illiterate the distribution is concentrated to the middle following what seems to be a normal distribution. However, nothing about a higher working memory among literate compared to illiterate can be said with certainty before further tests has been made.

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[6] The other two financial literacy questions can be found in the appendix.
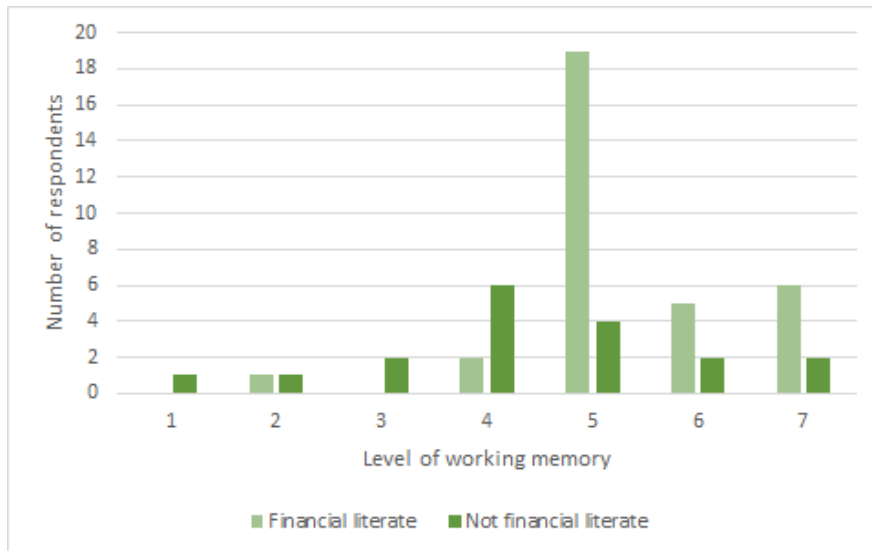
Figure 6. Distribution of the respondent's levels of working memory

To investigate if there was a relationship between levels of working memory and the absolute variable financial literacy we performed a binary logistic regression. The dependent variable was financial literacy and the independent variable working memory. The overall predicting capacity of our model was 7% which is quite good for a model where the dependent variable is binary. A one level increase in working memory is associated with a 87% increase in chance that the participant is financially literate.

Table 2. Binary logistic regression with financial literacy as dependent variable

Variables	Beta	Standard error	E^{Beta}	95% C.I. for E^{Beta}		Wald
				Lower	Upper	
Working memory	0.625	0.272	1.868	1.095	3.186	5.264*
Constant	-2.464	1.359	0.085			3.285**

* Significance level $p < 0.05$, ** Significance level $p < 0.10$

Even though the constant was not significant the model as a whole is significant on $p < 0.01$ thus hypothesis two is supported. The test showed that the null-hypothesis (financially literate participants = financially illiterate participants) could be rejected at $p < 0.05$.

4.4 Financial literacy and pre-knowledge

In line with the research by Gobet and Simon (1996) who tested whether the participant chess playing skills mattered for their recall of chess positions, we tested whether our financial literate participants would recall more real financial terms than non-existent financial terms. We tested this by conducting a Mann- Whitney U test to look for a significant difference in the mean value. The test showed that the mean rank was 30.41 for when the financially literate participants recalled the real terms compared to only 28.62 when they recalled non-existing financial terms. Since this test was significant on $p < 0.1$ this shows some support for H5a.

When we compared the correct answers on the real financial terms for the financially literate and the financially illiterate participants we found that he financially literate group had a mean value of 10.45 correct answers and a standard deviation of 1.60. The group of financially illiterate participants had a lower mean value of 8.57and a standard deviation of 3.33. In the testing of H5b we performed a Mann-Whitney U test to compare participants score in recognizing real financial terms using financial literacy as a grouping variable. The higher a participant scored (each correct word rewarded one point) the higher rank it would be assigned, hence, a higher mean rank in the test would mean a higher score of the group in the test. In accordance to our hypotheses financial literacy works positively as an explanatory factor (moderator) and the financial literate group recalled more real financial words compared to the group consisting of financially illiterate. The test displayed a higher mean rank 29.14 (n=33) for the financial literate group compared to the mean of those who were deemed not to be financially literate 20.25 (n=18) statistically significant in a two-tailed distribution, $p < 0.05$ p. Hence, the financial literate group has a higher mean score compared to the score of the group of financial illiterate. Therefore, H5b is supported.

Furthermore, those who were financial literate also made less errors when stating the real financial terms. They also recalled more of the non-existent financial terms than those who were financially illiterate.

4.4.1 Semantically versus visually presented information

To test if there were any difference in the participant's ability to recall visually or semantically presented information we performed a Wilcoxon signed rank test on the number of correct answers on visual and semantic stimuli. This test was performed on all of the participants'

answers. We were able to see a slight difference between the positive (semantic >visual) and negative (semantic < visual) mean ranks. The negative mean rank was 17.60 (n=25) and the positive mean rank was 17.22 (n=9) with $p < 0.05$. There were also 17 ties (correct answers on semantic stimuli = correct answers on visual stimuli). This means that the participants could recall the visually presented information slightly better than semantically presented information. Thus, H3 is supported.

We wanted to test this result further so we decided to investigate whether there were any differences between the participants who were financially literate and those who were financially illiterate on their recall of semantic and visual information. As financial literacy is included in our study as a moderator of memory of fund information, it is an interesting aspect to look upon a potential recall effect associated with presentation. In this case, the recall of financial and semantic information is studied with financial literacy as a moderator.

We separated the participants into two different groups, financially literate or illiterate, and then performed a Mann Whitney U test. The test measure the score of each group and assign each participant with a rank. The higher the rank, the higher total score. The literate group had a higher positive mean rank on recall of both the semantic and the visual stimuli. Semantic, literate (30.02) and illiterate (18.64), $p < 0,01$. Visual, literate (28.98) and illiterate (20.53), $p < 0.05$. The result from the Mann Whitney U test show a significant positive relationship between a higher degree of recall if an individual is financially literate. The individual capabilities (financial literacy) is determining the recall of financial information.

4.4.2 Financial working memory
The score of financial working memory that we created, see method section 4.5, had a mean value of 59.76 and standard deviation 16.60. The maximum score was 87.25 and the minimum score was 17.00. We tested the score of financial working memory against the financial literacy with a Mann-Whitney U test and found that those who were financial literate had a much higher mean rank 30.91 than the mean rank for those who were financially illiterate 17.00 $p < 0.01$. Thus, financial literacy is related to financial working memory. H4 is supported.

We also compared the financial working memory of participants who owned stocks and participants who did not own stocks. After performing a Mann-Whitney U test we could see

that the people who had stocks had a higher mean rank 32.07 than those who did not have stocks 21.75 p <0.05.

In an effort to explain the financial working memory in our participants we performed a regression analysis with financial working memory as the dependent variable and the participants working memory, financial literacy and whether or not the participant has stocks as independent variables. We wanted to create a model as below.

$$\hat{y}i = b0 + b1x1i + b2x2i + b3x3i$$

Through the regression analysis we found a model that could explain 32% of the variance on p <0.01 in the financial working memory. As mentioned previously the financial working memory is measured as a total score of the amount of fund information the participant could recall. The beta-values are shown in table X and even though they are not significant on an individual level, the model as a whole is significant.

Table 3. Linear regression with the dependent variable financial working memory

	B	t	R^2
Constant	34.19	4.17*	8.19
Level of working memory	0.24	1.77***	1.64
Financial literacy	0.34	2.48**	4.71
Owning stocks	0.24	1.86***	4.30

* p <0.01, ** p <0.05, *** p <0.1

The values given in table 3 suggests that the model, where $\hat{y}i$= financial working memory, should look like this:

$$\hat{y}i = 34,19* + 0,236x1i*** + 0,339x2i** + 0,240x3i***$$

* p <0.01, ** p <0.05, *** p <0.1

However, since the variables overlap in their confidence interval as shown below they are not separately significant. But as previously mentioned the model is significant.

Table 4. Confidence intervals (95%) for independent variables in linear regression

	Lower	Upper
Constant	17.713	50.67
Working memory	-0.37	6.2
Financial literate	2.19	21.14
Stocks	-0.65	16.66

4.5 Summary of hypotheses

	Hypotheses	Support
H1	Participants will recall less if a distraction has been presented after the information.	Not supported
H2	The higher working memory a respondent has, the probability of financial literacy is increased.	Supported
H3	Participants will recall information presented in a visual format to a greater extent than semantic information.	Supported
H4	Participants that are financially literate will recall more financial information than respondents who are not.	Supported
H5a	Participants who are financially literate will recall real financial terms to a greater extent than non-existent financial terms.	Supported
H5b	Participants who are financially literate will recall more real financial terms than those who are not financially literate.	Supported

5. Discussion and conclusions

In the final section, the results from the study will be interpreted, explained and discussed from the perspective of our research questions.

5.1 Purpose, hypothesis and implications

5.1.1 Hypotheses one, two and three

Starting from the perspective of memory the support for H3 confirms the existing theories concerning automatic processing of visual stimuli (Passer, & Smith, 2004). On the contrary, the processing of semantic information is dependent on the individual to actively engage with the material to process the information (Passer, & Smith, 2004). From the finding of support of the difference in financial memory depending on basic understand (financial literacy), it seems to be related to the ability of processing written fund information. In the conclusions from studies of choice architecture, visual presentations are put forward as the most appreciated format to present fund information among individual investors (Vlaev et al., 2009). To increase understanding, the preparation and decision to include graphical representation of risk in the regulated KID document is from a memory perspective a good decision (European Union, 2015). The motivation in the EU study was to narrow the information down to increase understanding of the information. It seems as, even if disconnected, the decided format of the KID aimed to increase understanding have large similarities to how the information should be presented if the aim was to maximize memory storage of the information.

The absence of support for H1 is not surprising considering the automatic processing of visual information. The theory behind the creation of the hypothesis was that a distraction would interfere with the repetition and processing in the working memory causing participants to perform worse compared to the questions without distractions. Another possible explanation for the high level of recall is the intention of the participants. If studying information with the intention to learn there will be a deeper level of processing aiding the transfer of information to the LTM (Tulving, 1966). All the participants of the study were aware of the measuring of their memory. The risk of a methodological error from an oversimplified test despite our pre-test should also be considered and controlled for in further studies of memory. If however, the reason for the high result follow the first explanation regarding our respondent's processing of the visual stimuli some implications can be drawn. If, the hypothesised outcome of a lower

recall if a distraction has been presented can be offset through visual presentation stimuli the necessity of immediate decision might be unnecessary. Implications for presenting in a financial setting would offer the provider of fund information (the communicator) the ability to store the information within the respondent a longer time through using visual stimuli.

The result of our participants working memory is consistent with the findings of previous studies implies a good selection of participants to base the study (Miller, 1957; Baddeley, 1983). The positive relation between working memory and financial literacy strengthens the argument of the relevance to include memory as a mediator in research of presentation format of financial information. The indications of this study is through including working memory when measuring the relation between financial literacy and response to different presentation formats it is possible to receive a greater depth in the analysis. However, it is important to critically review the origin of the relationship between financial literacy and memory. We have attempted to offer some explanation through applying the theories posed by Gobet and Simon (1998). Further research could through measuring working memory against more aspects affecting decisions in a fund setting identify new relationships affecting a decision. Intuitive as public policy introduced the studies of choice architecture to assist people in making better choices as individual's lack of knowledge prevent them from understanding the information presented. Through our study we now know that you will recall information you understand to a greater extent. If a person is to make a complex choice but does not know what it concerns the likelihood to recall the important information will be much lower. If you do not know what to look for, the likelihood of being affected from factors such as placement of information might increase (Foster et al., 2015). Current studies have not included memory but rather assumed that choices to be made in direct connection to the information. However, connecting to our example with car rental in the beginning, this is not always the case. Off course, you could always search for the information, provided that you know what to look for and have the time. As research has shown, consumers does not know what to search for in a fund setting and rely on advisors to make the decisions for them (Gerardi et al., 2010; Swedish Investment Fund Association, 2016b).

5.1.2 Hypothesis four

The fourth hypothesis was supported, thus financial literacy could be used to explain the amount of information. The participants who were financially literate could recall fund information to a greater extent than those who were financially illiterate. This result is

consistent with the previously mentioned study by Gobet and Simon (1996) where the higher ranked chess players could recall more chess positions than those with a lower ranking. As we found a relationship between the financial literacy and the amount of fund information an individual could recall the findings from Gobet and Simon (1996) are confirmed in another setting; ability affects the working memory.

As the difference in the amount of information a financially literate person and a financially illiterate person could recall were quite substantial this might have implications on these individuals lives as to the implication from financial choices (Gerardi et al., 2010) since people do not always have all the information available at the time of the investment. Working memory and decision making has been found to be asymmetrically dependent, working memory is not dependent on decision making but the decision making is dependent on a normal working memory (Bechara et al., 1998). Thus, if your working memory is abnormal this will affect your ability to make rational decisions. If this relationship is applicable to the financial working memory of an individual, an abnormal financial working memory could lead to unfortunate investments such as funds with high fees and low return. This would further the understanding that not all individuals have the same prerequisite on the market and that this is due to cognitive capability. We have not tested this relationship so we cannot know for sure whether financial working memory has an effect on financial decision making or not.

As H4 was supported we wanted to further investigate what explained the participants financial working memory. We found that people who owned stocks had a better financial working memory than those who did not invest in stocks. Could this relationship be explained by the fact that stocks are generally a riskier investment, compared to for example funds, and that people who feel comfortable (i.e. can process more information) in the field are inclined to take more risks?

When we built our regression model we found that financial literacy, working memory as well as whether the participant owned stocks or not helped explain their score in financial working memory. One possible usage for this model might be as a recruitment instrument, it should be beneficial for an analyst, investor or financial advisor to be able to recall a lot of fund information. It would make them more effective at their job if they would not have to use a lot of their time to search for previously viewed information. The companies recruiting these

kinds of professions could test the working memory of the applicant with an easy digit recall test like the one we used in our survey, together with the three standardized questions for financial literacy and ask the applicant whether they invest in stocks or not. This simple procedure could help them recruit the right people, if then the relationship between financial working memory and financial decision making is confirmed this measurement might be very beneficial.

5.1.3 Hypothesis five

The results from the testing of H5a and H5b were also consistent with Gobet and Simon (1996). In our study these positions on the chessboard were translated to financial terms, real terms and non-existent. The relationship between previous knowledge and ability to recall information is thus transferrable to the financial setting. This implies that if a person would want to improve their memory on a subject a good tactic would be to learn about the subject. However, research has shown that financial literacy is not necessarily something that can be learned through financial education (Mandell, & Klein, 2009). The fact that more real financial terms were remembered is also consistent with Tulving (1986); the participant recognised the real words that have been encoded in the semantic memory previously to a greater extent. The people who were financially illiterate had recalled less real financial terms than the financially literate group. Individuals who are financially illiterate would probably benefit from being able to access the relevant fund information in an easy way. Perhaps an aid of some sort (e.g. an app) that can be accessed at all times and sorted after the individual's needs would help. Our findings help prove that individuals are on the financial market on different terms due to their ability or inability.

5.2 Limitations

The selective use of economy students, even though our participants were from two different schools we cannot argue that they are representative for the rest of the society. Also, as people decided to enter the study it is impossible for us to determine the selection of economy students. People with a perceived good working memory might be more prone to enter risking a selection bias.

From previous studies, financial literacy has been concluded as a determinant of financial decisions, the relationship between financial literacy and working memory was in this study

supported. However, we did not study whether participants with low levels of working memory also made less beneficial financial decisions.

As the test was made in an unrepresentative environment for actual behaviour towards financial information, this thesis lack ecological validity (refers to the extent to which the findings of a research study are able to be generalized to real-life settings). Neither was any aid that would be available in reality allowed. Therefore, to increase ecological validity of the results an inclusion of a real-life setting is necessary.

5.3 Future research

As the findings in this study only investigates whether there is a relationship between presentation of fund information and memory controlling for financial literacy, more within the area is to be explored. Further research should investigate if there is a relationship between financial working memory and financial decision making, and if any explanation is contributed through including memory as a moderator. A research question could be: *Does memory interfere with decision making in a financial setting?*

Another suggestion of further research is the final step within choice architecture; the actual choice. From this study, the relationship between basic financial knowledge and remembrance is supported, it would be interesting to know if the individuals with a better memory on the subject actually makes better decisions. Foster et al. (2015) found a relationship between the positioning of information and choice. It would be interesting to test whether remembrance could be included as an explanatory moderator of this relationship.

5.4 Conclusion

In this study, we were able to conclude that not all individuals are on the financial market under the same prerequisite. Individuals who are financially literate seems to have advantages because of their ability to recall more fund information. Thus, we can answer one of our initial research questions:

 Yes, the working memory of fund information is affected by an individual's basic understanding within the subject.

We could also conclude that visually presented fund information was recalled to a greater extent, even with a distraction present, than semantically presented information. Because these represent different types of choice architecture we can answer our other research question:

Yes, Is there any difference in how well consumer's recall different types of fund information?

We have now seen that ability and previous knowledge affect working memory in a financial setting.

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Appendix

Below are the rules provided to the independent students for the coding of the free-recall questions. Data from the first three respondents is also provided.

Förhållningsregler:
1 poäng för korrekt begrepp (även om ordet inte har har korrekt böjning/mindre stavfel)
0,5 poäng för direkt synonym, större stavfel, man förstår vilket ord som menas
0 poäng för fel

Norman-belopp	Alfa-värde	Insättningsavgift
Riskindikator	Volatilitet	Uttagsavgift
Standardavvikelse	Likviditetsrisk	KIID-risk
Beta-värde	Operativ risk	Förvaltningsavgift

Var vänlig ange alla begrepp du såg på föregående sida i fältet nedan. Du behöver inte ange begreppen i någon särskild ordningsföljd.

PERSON 1

alfaavärde betavärde volatilitet normanvärde KII-index operativt index

PERSON 2

Beta-värde alfa-värde Riskindikator Volatilitet Standardavvikelse Uttagsavgift Insättningsavgift Förvaltningsavgift likviditetsrisk operativ risk KIID risk

PERSON 3

KIID-risk volatilitet alfa-värde norman-belopp beta-värde insättningsavgift uttagsavgift standardavvikelse

Förhållningsregler:
1 poäng för korrekt begrepp (även om ordet inte har har korrekt böjning/mindre stavfel)
0,5 poäng för direkt synonym, större stavfel, man förstår vilket ord som menas
0 poäng för fel

Sträng-belopp	KD-risk	Verksamhets risk
Delta-värde	Påbyggnadsavgift	Bonusrisk
Uttagsrisk	Epsilon-värde	Fiffelavgift
Andersson-belopp	Monetär risk	Konfidens

Var vänlig ange alla begrepp du såg på föregående sida. Du behöver inte ange begreppen i någon särskild ordningsföljd.

PERSON 1

uttagsavgift fiffelbelopp deltavärde

PERSON 2

bonusrisk verksamhetsrisk andersson-belopp sträng-belopp konfidens delta-värde epsilon-värde

PERSON 3

Sträng-belopp KD-risk verksamhetsrisk epsilonvärde konfidens fiffelavgift andersson-avgift monetär-risk

Förhållningsregler:
1 poäng för ett korrekt påstående (hel mening inte nödvändig utan mer fakta)
Exempel:
"Fonden placerar i aktier över hela världen och tillämpar en god spridning över regioner, länder och sektorer"

1 poäng ges om respondenten skriver "placerar aktier över hela världen" eller "god spridning över länder". Skrivs båda ges 2 poäng

Enstaka ord/begrepp/siffror ger 0.5 poäng.

MÅL- OCH PLACERINGSINRIKTNING

Placeringsinriktning: Fonden placerar i aktier över hela världen och tillämpar en god spridning över regioner, länder och sektorer. Fonden investerar långsiktigt i mogna och etablerade bolag som fondbolaget anser är undervärderade.

Målsättning: Målet är att ge god avkastning på lång sikt med hänsyn tagen till fondens operativa risknivå.

Fonden kommer alltid att placera minst 80 % av tillgångarna i börsnoterade aktier och kan placera upp till 10 % av tillgångarna i onoterade aktier.

Fonden kan använda derivat för att minska valutakursrisker. Detta innebär att fonden försöker minska effekterna av valutakursförändringar.

En långsiktig strategi medför en tillfällig låg utdelning från fonden.

Jämförelseindex: DC Index World inkl. utdelningar

Rekommendation: Denna fond kan vara olämplig för investerare som planerar att ta ut sina pengar inom fem år. Överlag används börsnoterade aktier med mellan till hög volatilitet på SRRI-skalan.

Hur mycket av informationen som du tog del av kommer du ihåg? Skriv ned vad du minns i följande fält.

PERSON 1

Långsiktig satsning. minst 80% noterade bolag max 10% onoterade Ej lämplig om sparandet är tänkt på mindre än 5 år. Låg utdelning för tillfället Kan använda derivat för att minska risker

PERSON 2

Investerar minst 80% i börsnoterade bolag, max 10% i onoterade bolag. Ej lämpligt för investerare som planerar ta ut pengar inom 5 år. Investerar i bolag med medel till hög nivå på SRRI-skalan.

PERSON 3

Långsiktig strategi, aktier i hela världen. 80% i noterade aktier, upp till 10% i onoterade aktier, använder derivat för valutasäkring, tillfällig låg utdelning från fonden. inte lämplig om planerar ta ut pengar inom 5 år.

Förhållningsregler

1 poäng för ett korrekt påstående (hel mening inte nödvändig utan mer fakta)

Exempel:

"Fonden placerar i aktier över hela världen och tillämpar en god spridning över regioner, länder och sektorer"

1 poäng ges om respondenten skriver "placerar aktier över hela världen" eller "god spridning över länder". Skrivs båda ges 2 poäng

Enstaka ord/begrepp/siffror ger 0.5 poäng.

Visuellt inkodad information ger 1 poäng i separat pott

—— Page Break ——————————————————————————————

Q141 Betänk annonsen du precis studerat. Var vänlig återge allt du kan minnas i det öppna fältet nedan från annonsen du precis studerat.

PERSON 1

löpande förvaltning 0,2% uttagsavgift 3% 7% avkastning 5.5% hos konkurrenter. källa morningstar.

PERSON 2

Avkastning 7%, närmaste konkurrent 5,5% (källa Morningstar). Erbjuda konkurrenskraftig avkastning

till kunder. Avgift som lägst 0,2%. Tillkommer 3% i uttagsavgift.

PERSON 3

7% avkastning, närmsta konkurrent 5,5%. Lägsta avgift 0,2%, uttagssavgift 3%

Förhållningsregler
1 poäng för ett korrekt påstående (hel mening inte nödvändig utan mer fakta)
Exempel:

"Fonden placerar i aktier över hela världen och tillämpar en god spridning över regioner, länder och sektorer"
1 poäng ges om respondenten skriver "placerar aktier över hela världen" eller "god spridning över länder". Skrivs båda ges 2 poäng
Enstaka ord/begrepp/siffror ger 0.5 poäng.

Visuellt inkodad information ger 1 poäng återges i egen kolumn

Betänk annonsen du precis studerat. Var vänlig återge allt du kan minnas i det öppna fältet nedan från annonsen du precis studerat.

PERSON 1

6.8 % avkastning konkurrent 4.2 / morningstar Löpande avgiften minskar när kapitalet ökar. 50 000 = 1 % 100 000 = 0,5 200 000 = 0,3 %

PERSON 2

Avkastning 6,3% närmaste konkurrent 4,8%. Högre insättning generar lägre avgifter. En mindre uttagsavgift tillkommer.

PERSON 3

6,8% avkastning, 4,X närmsta konkurrent. Förvaltningsavgift baserad på kapitalinsättningens storlek; 50 000 ger 1%, 100 000 ger 0,5%, 200 000 ger 0,3%. Uttagsavgift tillkommer.

The survey

On the next page the main survey that all the respondents performed on their computer will be presented. The material is extracted from Qualtrics.

Part one Working Memory

Bästa student!

Du kommer nu att delta i en studie som syftar till att bidra till modern minnesforskning. Med din hjälp kommer vi att undersöka hur det ekonomiska minnet förhåller sig relativt det övriga minnet hos individer. Ett vanligt grundantagande är att individer har samma förutsättningar vid beslutstagande. Vi undrar om en individs minne kan påverka detta antagande och i förlängningen också påverka beslut.

Undersökningen upplägg
Undersökningen har 7 delar där 5 är kopplade till att undersöka minne. Den sjunde och sista delen är deskriptiv information där vi ställer lite frågor om dig som individ. Del 2-5 kommer att inkludera ekonomisk information presenterad i olika miljöer och med olika presentationsutseenden.

Det kommer inte att vara möjligt att backa vid någon del i undersökningen, vi ber dig därför att noga läsa igenom instruktionerna till varje del.

Förhållningsregler i undersökningen:
-Det är inte tillåtet att använda några hjälpmedel (till exempel anteckningsblock) när du svarar.
-Tveka inte att fråga oss vid eventuella oklarheter vid någon del i undersökningen!

Intresserad av att ta del av studiens slutsatser?
Fyll då i din mejl i slutet av undersökningen så återkommer vi.

Väl mött
Felicia och Therese

Del 1 av 7
Förtest med sifferserier

Undersökningens förtest består av videos där du får siffror presenterade. Total kommer 6 videos innehållandes sifferserier att visas. Din uppgift är att komma ihåg siffrorna i ordningsföljd i varje video för att sedan återge dem i fältet på nästa sida. Sedan fortsätter du till nästa. Varje siffra visas i 2 sekunder och varje video visas endast en gång.

Starta videon när du är redo och studera videon noggrant. Varje video visas endast en gång.

Video 1

Du kommer nu att få se en video som visar olika siffror i följd. Din uppgift är att komma ihåg siffrorna i ordningsföljd för att sedan återge dem i fältet på nästa sida.

Starta videon när du är redo och studera videon noggrant. Videon visas endast en gång.

▶ 0:00 / 0:06 ──────●────────────────────────── 🔊
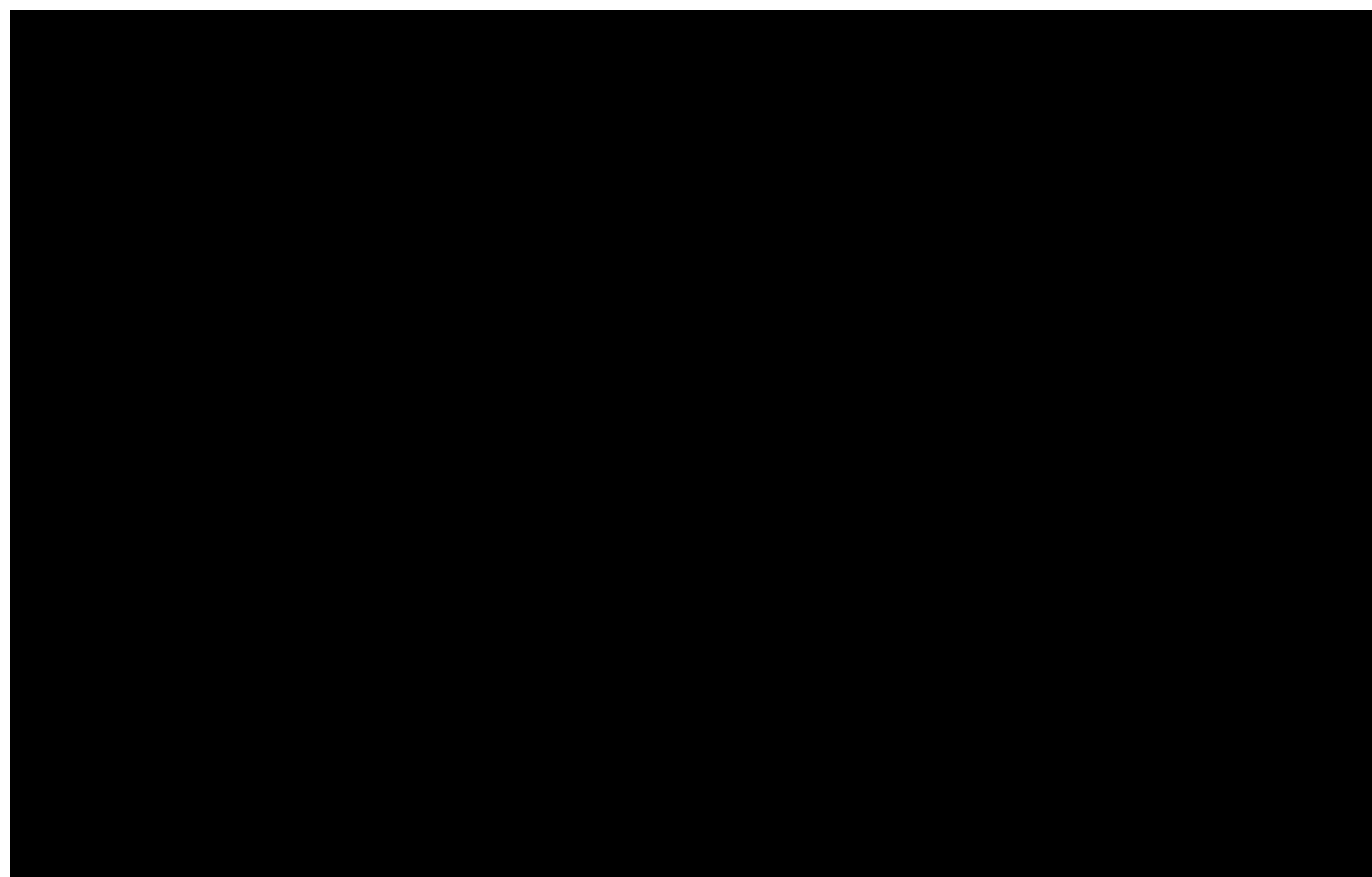
Var vänlig återge sifferserien du just såg. Ange siffrorna i ordningen de visades, den siffran som visades först skriver du först etc.

[   ]

Video 2

Du kommer nu att få se en video som visar olika siffror i följd. Din uppgift är att komma ihåg siffrorna i ordningsföljd för att sedan återge dem i fältet på nästa sida.

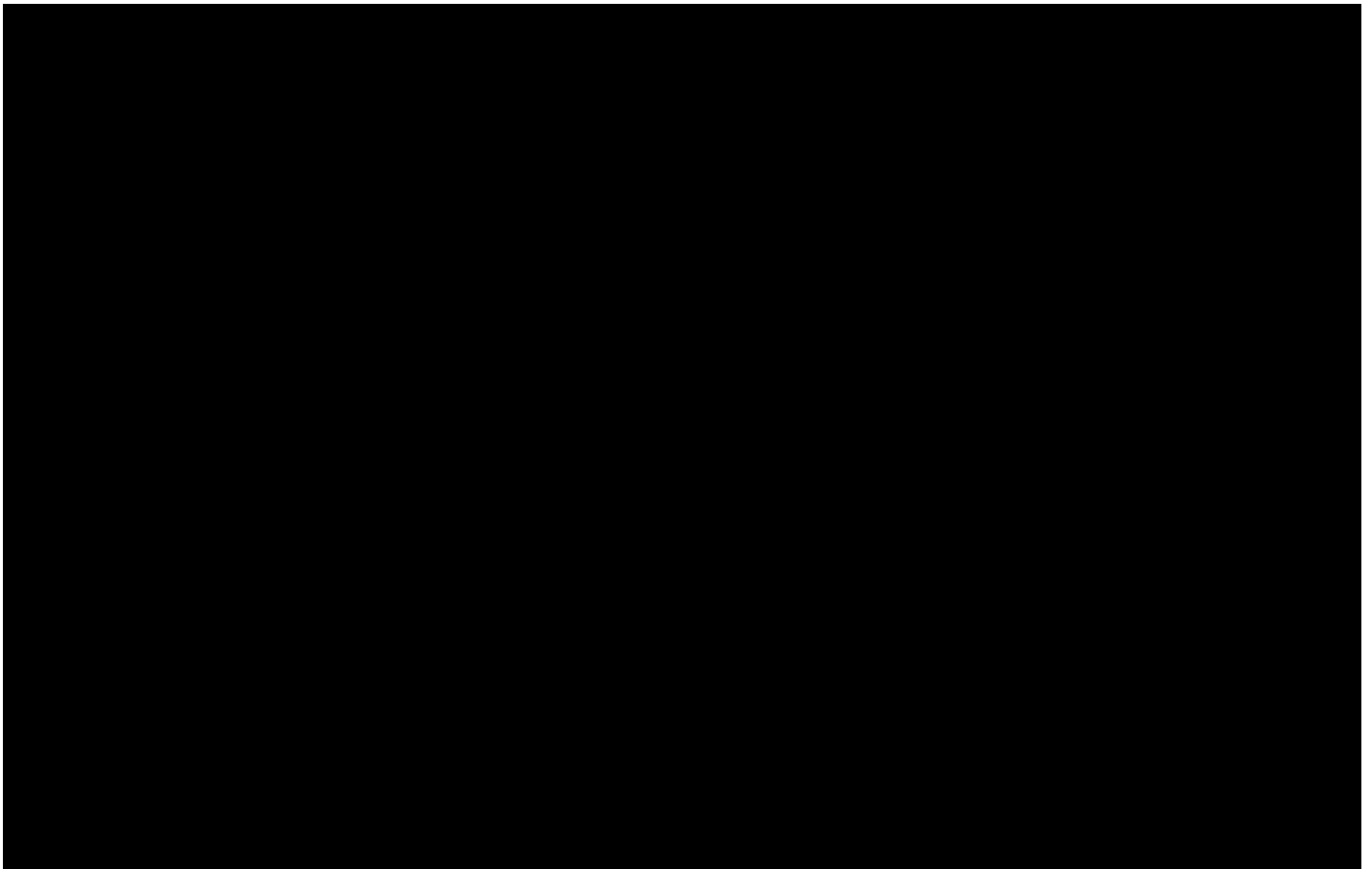Starta videon när du är redo och studera videon noggrant. Videon visas endast en gång.

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Var vänlig återge sifferserien du just såg. Ange siffrorna i ordningen de visades, den siffran som visades först skriver du först etc.

[   ]

Video 3

Du kommer nu att få se en video som visar olika siffror i följd. Din uppgift är att komma ihåg siffrorna i ordningsföljd för att sedan återge dem i fältet på nästa sida.

Starta videon när du är redo och studera videon noggrant. Videon visas endast en gång.
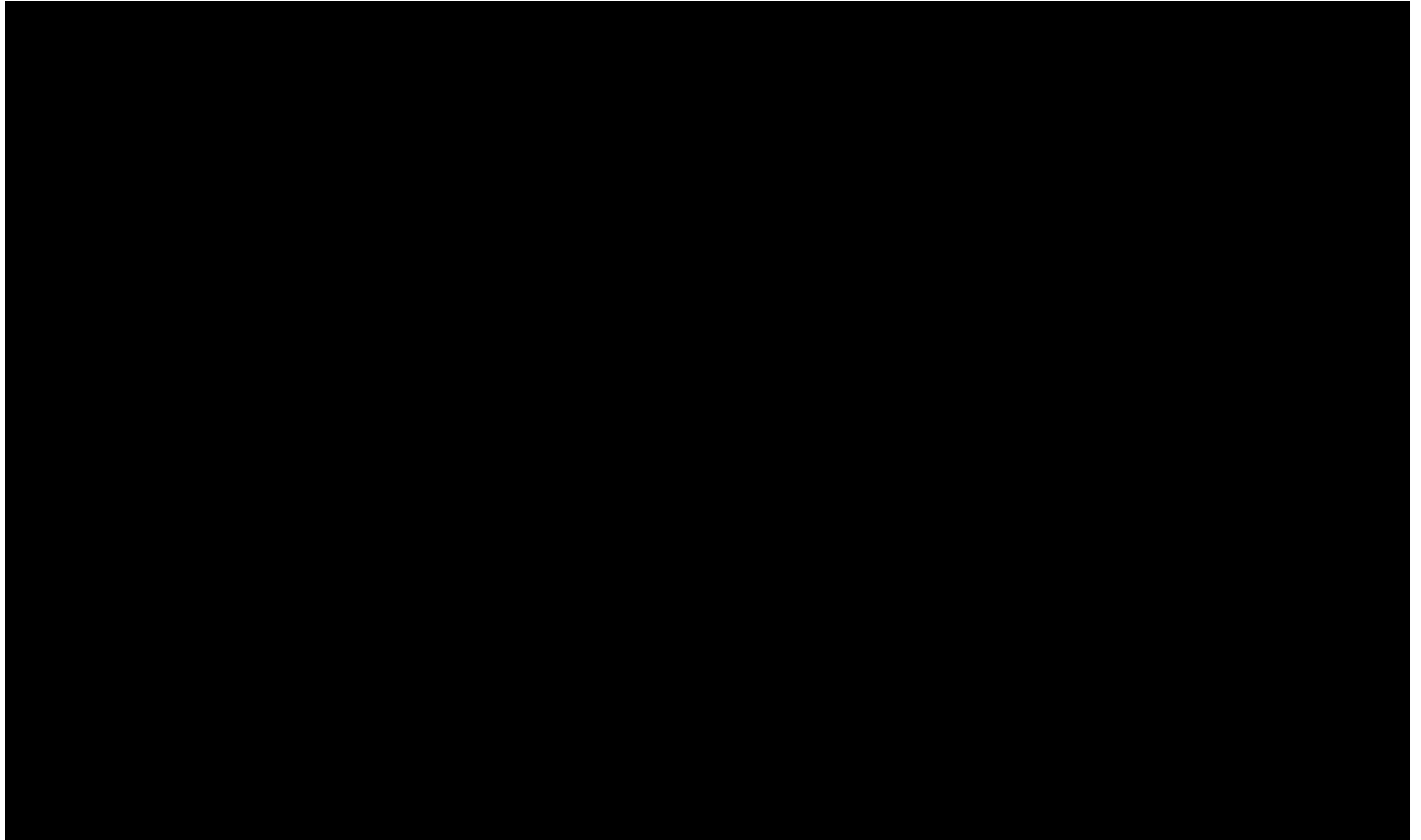

▶ 0:00 ●──────────────────────────────────────

◀ ▬▬▬▬▬▬▬▬▬▬▬▬▬▬ ▶

Var vänlig återge sifferserien du just såg. Ange siffrorna i ordningen de visades, den siffran som visades först skriver du först etc.

[   ]

Video 4

Du kommer nu att få se en video som visar olika siffror i följd. Din uppgift är att komma ihåg siffrorna i ordningsföljd för att sedan återge dem i fältet på nästa sida.

Starta videon när du är redo och studera videon noggrant. Videon visas endast en gång.
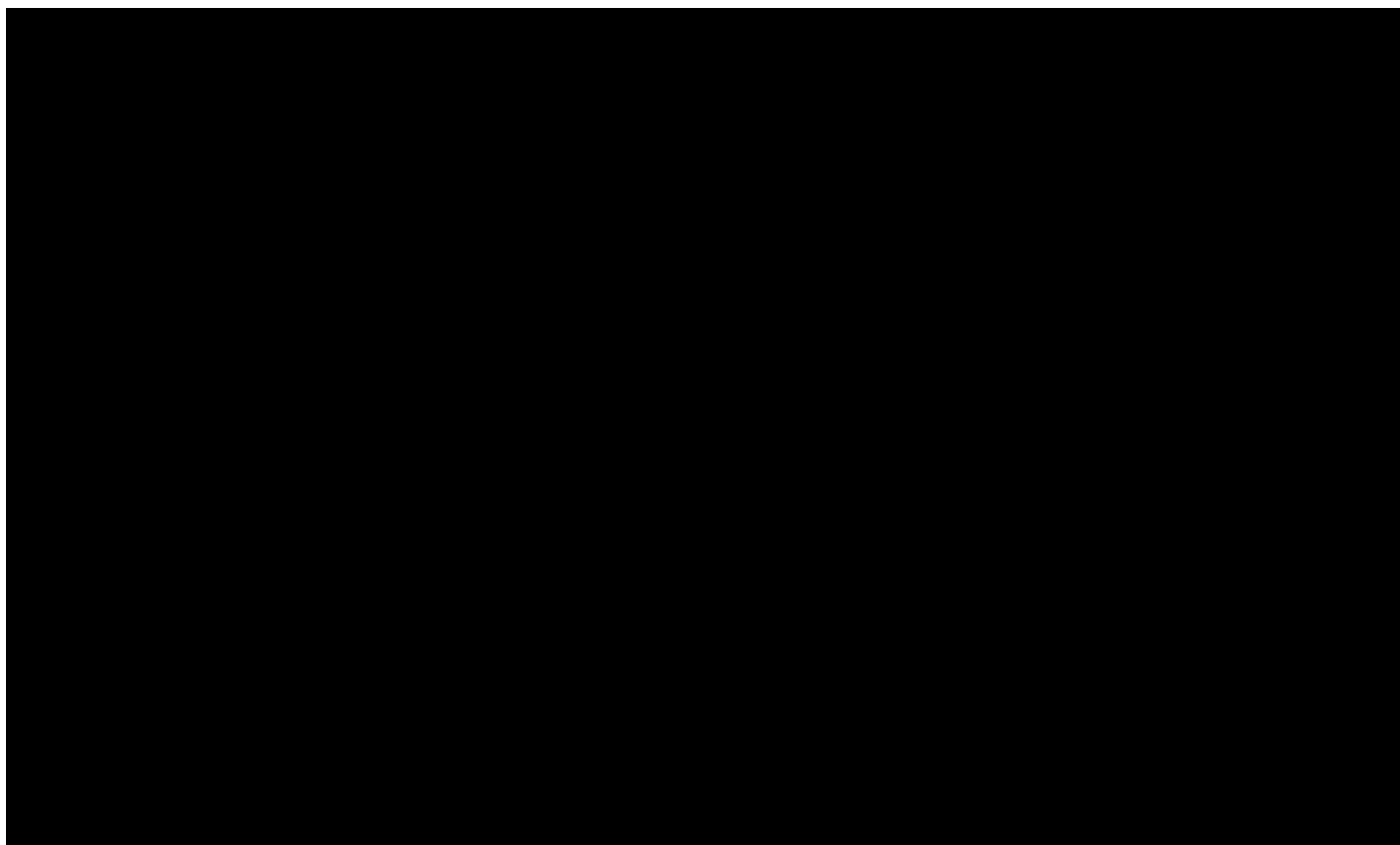

▶ 0:00 ⬤━━━━━━━━━━━━━━━━━━━━━━━━━━━━━

Var vänlig återge sifferserien du just såg. Ange siffrorna i ordningen de visades, den siffran som visades först skriver du först etc.

[   ]

Video 5

Du kommer nu att få se en video som visar olika siffror i följd. Din uppgift är att komma ihåg siffrorna i ordningsföljd för att sedan återge dem i fältet på nästa sida.

Starta videon när du är redo och studera videon noggrant. Videon visas endast en gång.

▶ 0:00 🔵

Var vänlig återge sifferserien du just såg. Ange siffrorna i ordningen de visades, den siffran som visades först skriver du först etc.

[   ]

Video 6

Du kommer nu att få se en video som visar olika siffror i följd. Din uppgift är att komma ihåg siffrorna i ordningsföljd för att sedan återge dem i fältet på nästa sida.

Starta videon när du är redo och studera videon noggrant. Videon visas endast en gång.
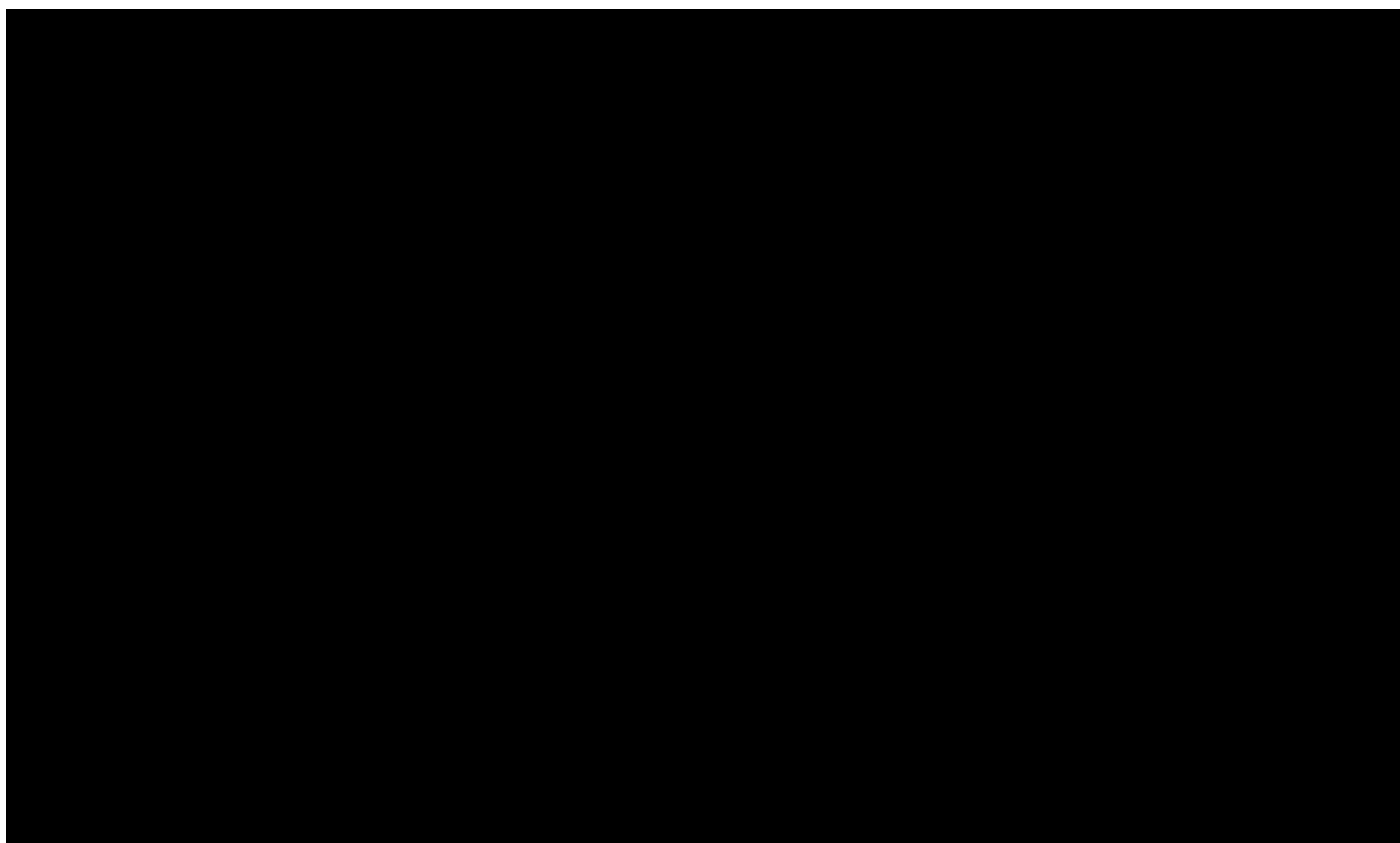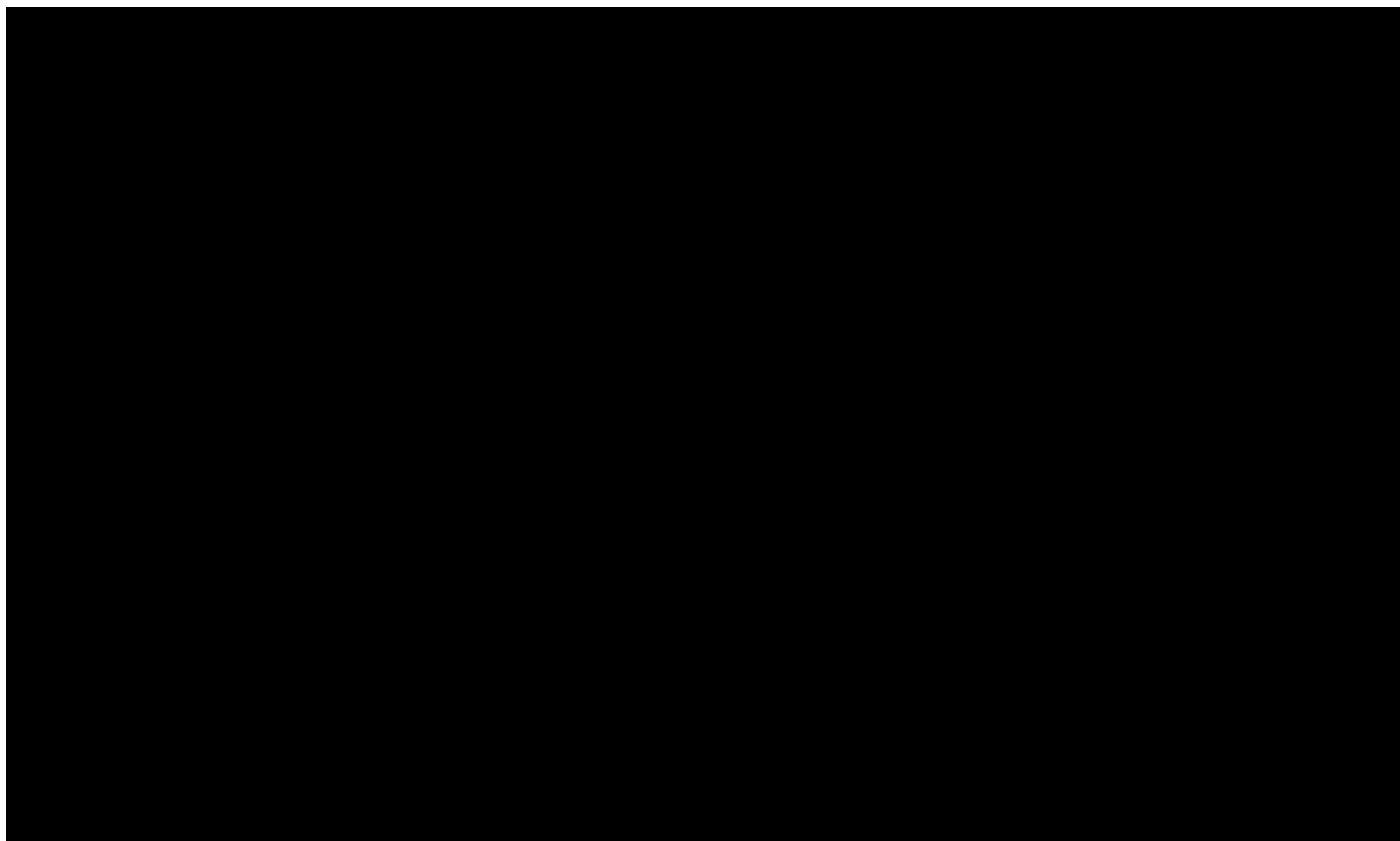
▶ 0:00 ●━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━

◄ ▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬▬ ►

Var vänlig återge sifferserien du just såg. Ange siffrorna i ordningen de visades, den siffran som visades först skriver du först etc.

[   ]

Part two Understanding vs. Working Memory

Tack!

Del 2 av 7

I nästa del kommer du nu att få se en mängd begrepp bekanta eller obekanta i ekonomiska sammanhang. Du kommer sedan att bli ombedd att återge dessa. Följ instruktionerna ovanför bilderna och kom ihåg att det går inte att backa tillbaka i undersökningen..

Studera begreppen på bilden nedan. På nästa sida kommer du sedan att bli ombedd att återge dessa begrepp. Det går inte att backa tillbaka i undersökningen.

Norman-belopp	Alfa-värde	Insättningsavgift
Riskindikator	Volatilitet	Uttagsavgift
Standardavvikelse	Likviditetsrisk	KIID-risk
Beta-värde	Operativ risk	Förvaltningsavgift

Var vänlig ange alla begrepp du såg på föregående sida i fältet nedan. Du behöver inte ange begreppen i någon särskild ordningsföljd.

Markera nedan vilket eller vilka begrepp som fanns med på bilden du såg.

- ☐ Delta-värde
- ☐ Beta-värde
- ☐ Standardavvikelse
- ☐ Riskmultiplikator
- ☐ Alfa-värde
- ☐ Volatilitet
- ☐ Varians
- ☐ Skatteavgift
- ☐ Förvaltningsavgift
- ☐ Fondavgift
- ☐ Index
- ☐ Riskindikator
- ☐ Insättningsavgift
- ☐ Median
- ☐ Likviditetsrisk
- ☐ Uttagsavgift
- ☐ Epsilon-värde
- ☐ Värdepapper
- ☐ Monetär risk
- ☐ Norman-belopp
- ☐ Påbyggnadsavgift
- ☐ KIID-risk
- ☐ Verksamhets risk
- ☐ Rating
- ☐ Andersson-belopp
- ☐ KD-risk
- ☐ Operativ risk
- ☐ Räntebärande

Part two Understanding vs. Working Memory

Studera begreppen på bilden nedan. På nästa sida kommer du sedan att bli ombedd att återge dessa begrepp.

Sträng-belopp	KD-risk	Verksamhets risk
Delta-värde	Påbyggnadsavgift	Bonusrisk
Uttagsrisk	Epsilon-värde	Fiffelavgift
Andersson-belopp	Monetär risk	Konfidens

Var vänlig ange alla begrepp du såg på föregående sida. Du behöver inte ange begreppen i någon särskild ordningsföljd.

Markera nedan vilket eller vilka begrepp som fanns med på bilden du såg.

- ☐ Delta-värde
- ☐ Beta-värde
- ☐ Standardavvikelse
- ☐ Riskmultiplikator
- ☐ Alfa-värde
- ☐ Volatilitet
- ☐ Varians

- ☐ Skatteavgift
- ☐ Förvaltningsavgift
- ☐ Påbyggnadsavgift
- ☐ Index
- ☐ Riskindikator
- ☐ Fiffelavgift
- ☐ Konfidens

- ☐ Likviditetsrisk
- ☐ Bonusrisk
- ☐ Epsilon-värde
- ☐ Värdepapper
- ☐ Uttagsrisk
- ☐ Norman-belopp
- ☐ Sträng-belopp

- ☐ KIID-risk
- ☐ Monetär risk
- ☐ Rating
- ☐ Andersson-belopp
- ☐ KD-risk
- ☐ Verksamhets risk
- ☐ Räntebärande

Part three Semantic Memory

Del 3 av 7

I denna del i undersökningen kommer frågorna nu att vara utformade så att den ekonomiska informationen sätts in i ett realistiskt sammanhang. Studera bilderna du ser och kom ihåg deras innehåll. Det inte är möjligt att backa i undersökningen.

En kort introduktion inför varje fråga följer.

Under vissa av frågorna i denna del kommer vi även att be dig ange hur säker du är på ditt svar. Det kommer att vara en sjugradig skala där 1 betyder "inte alls säker" och 7 betyder "helt säker".

Vi inleder med en kort övningsuppgift. Titta på tabellen nedan och memorera dess innehåll. På nästa sida kommer du sedan att få en fråga på informationen i tabellen.

Engångsavgifter som tas ut före eller efter du investerar	
Insättningsavgift	ingen
Uttagsavgift	1,0%
Ovanstående är det som maximalt kan tas ut av dina pengar innan behållningen betalas ut	
Avgifter som tagits ur fonden under året	
Årlig avgift	1,24%
Avgifter som tagits ur fonden under särskilda omständigheter	
Prestationsbaserad avgift	ingen

Vad var insättningsavgiften?

○ Ingen

○ 0,5%

○ 1,20%

○ 2,14%

○ 3%

Rätt!

Insättningsavgiften blir ofta ihopblandad med uttagsavgiften rätt svar ska vara "ingen".

Engångsavgifter som tas ut före eller efter du investerar	
Insättningsavgift	ingen
Uttagsavgift	1,0%
Ovanstående är det som maximalt kan tas ut av dina pengar innan behållningen betalas ut	
Avgifter som tagits ur fonden under året	
Årlig avgift	1,24%
Avgifter som tagits ur fonden under särskilda omständigheter	
Prestationsbaserad avgift	ingen

Grymt nu är du redo att köra!

Nedan följer en text vanligt förekommande i ett fondfaktablad som banker måste kunna visa och tillhandahålla för sina kunder. Innehållet i ett fondfaktablad har till syfte att upplysa potentiella investerare om information som kan påverka ett fondval.

Efter texten nedan så kommer några frågor baserat på textens innehåll. Memorera texten och tryck dig sedan vidare för att komma till frågorna.

MÅL- OCH PLACERINGSINRIKTNING

Placeringsinriktning: Fonden placerar i aktier över hela världen och tillämpar en god spridning över regioner, länder och sektorer. Fonden investerar långsiktigt i mogna och etablerade bolag som fondbolaget anser är undervärderade.

Målsättning: Målet är att ge god avkastning på lång sikt med hänsyn tagen till fondens operativa risknivå.

Fonden kommer alltid att placera minst 80 % av tillgångarna i börsnoterade aktier och kan placera upp till 10 % av tillgångarna i onoterade aktier.

Fonden kan använda derivat för att minska valutakursrisker. Detta innebär att fonden försöker minska effekterna av valutakursförändringar.

En långsiktig strategi medför en tillfällig låg utdelning från fonden.

Jämförelseindex: DC Index World inkl. utdelningar

Rekommendation: Denna fond kan vara olämplig för investerare som planerar att ta ut sina pengar inom fem år. Överlag används börsnoterade aktier med mellan till hög volatilitet på SRRI-skalan.

Hur mycket av informationen som du tog del av kommer du ihåg? Skriv ned vad du minns i följande fält.

Nedan finns information som är vanligt förekommande vid fondpresentationer online. Läs igenom informationen och memorera så mycket som möjligt. Fortsätt sedan till nästa sida där frågor på informationen följer.

Basfakta

Senaste NAV	14,69 GBP	2017-02-27
Högst, senaste 12 mån	14,94 GBP	2017-02-22
Lägst, senaste 12 mån	10,19 GBP	2016-06-01
Senaste utdelning	-	-

Ändring NAV en dag (SEK)
0,52%

Fondförmögenhet (milj) (?)
109,25 USD
PPM-nummer
-
Fondens startdatum
2011-01-21

Förvaltning
Fondbolag
BlackRock Asset
Management Ireland - ETF
Förvaltare
Not Disclosed (sedan 2011-
01-21)

Avgifter
Årlig avgift (?)
0,74% (2017-01-24)
Uttag av resultatbaserad avgift (?)
-
Förvaltningsavgift (max) (?)
0,74% per år
Förvaltarens andel av resultatet (?)
-
Max köpavgift (?)
-
Max säljavgift (?)

Nedan följer frågor på bilden från föregående sida.

Fanns det någon årlig avgift på bilden du just såg?

Ja	Nej	Vet ej
◯	◯	◯

Hur säker är du på ditt svar? Svara på skalan nedan.

1 Mycket osäker	2 Ganska osäker	3 Något osäker	4 Tveksam	5 Något säker	6 Ganska säker	7 Mycket säker
◯	◯	◯	◯	◯	◯	◯

Betänk bilden av basfakta som du precis studerade. Hur stor var fondens årliga avgiften?

[   ]

Fanns "senaste NAV" angivet?

Ja	Nej	Vet ej
◯	◯	◯

Hur säker är du på ditt svar? Svara på skalan nedan.

1 Mycket osäker	2 Ganska osäker	3 Något osäker	4 Tveksam	5 Något säker	6 Ganska säker	7 Mycket säker
◯	◯	◯	◯	◯	◯	◯

Betänk bilden av basfakta som du precis studerade. Hur stor var fondens "senaste NAV"?

[   ]

Fanns "volatilitet" angivet?

Ja	Nej	Vet ej
○	○	○

Hur säker är du på ditt svar? Svara på skalan nedan.

1 Mycket osäker	2 Ganska osäker	3 Något osäker	4 Tveksam	5 Något säker	6 Ganska säker	7 Mycket säker
○	○	○	○	○	○	○

Betänk bilden av basfakta som du precis studerade. Hur stor var fondens volatilitet?

[   ]

Nedan följer ekonomisk information som är vanlig att inkludera i fondinformation kommunicerad i app-format. Läs igenom och memorera informationen. Fortsätt sedan till nästa sida där frågor på informationen följer.

Förvaltare	Christopher Sundman
Förvaltarkommentar	⌄

Huvudkategori	Aktiefonder
Underkategori	Tillväxtmarknad
Kurs	76,88 SEK (2017-03-01)
Förvaltningsavgift	2,4%
Insättningsavgift	0%
Uttagsavgift	0%
Premiepension	Ja (390062)

Nedan följer frågor på bilden från föregående sida.

Vad hette förvaltaren?

○ Charlotte Sivertsson
○ Charlie Svensson
○ Carl Sundin
○ Christopher Sundman
○ Camilla Solheden

Hur säker är du på ditt svar? Svara på skalan nedan.

1 Mycket osäker	2 Ganska osäker	3 Något osäker	4 Tveksam	5 Något säker	6 Ganska säker	7 Mycket säker
○	○	○	○	○	○	○

Vad tillhörde fonden för huvudkategori

○ Landsfonder

○ Pensionsfonder

○ Aktiefonder

○ Råvarufonder

○ Räntefonder

Hur säker är du på ditt svar? Svara på skalan nedan.

1 Mycket osäker	2 Ganska osäker	3 Något osäker	4 Tveksam	5 Något säker	6 Ganska säker	7 Mycket säker
○	○	○	○	○	○	○

Vad var underkategorin?

○ Tillväxtmarknad

○ Regressionsmarknad

○ Inflationsmarknad

○ Deflationsmarknad

○ Nedgångsmarknad

Hur säker är du på ditt svar? Svara på skalan nedan.

1 Mycket osäker	2 Ganska osäker	3 Något osäker	4 Tveksam	5 Något säker	6 Ganska säker	7 Mycket säker
○	○	○	○	○	○	○

Vad var kursen för fonden?

○ 67,88

○ 68,77

○ 76,88

○ 86,78

○ 88,76

Hur säker är du på ditt svar? Svara på skalan nedan.

1 Mycket osäker	2 Ganska osäker	3 Något osäker	4 Tveksam	5 Något säker	6 Ganska säker	7 Mycket säker
○	○	○	○	○	○	○

Vilken var förvaltningsavgiften?

○ 2,24%

○ 2,4%

○ 3,2%

○ 4,2%

○ 4,5%

Hur säker är du på ditt svar? Svara på skalan nedan.

1 Mycket osäker	2 Ganska osäker	3 Något osäker	4 Tveksam	5 Något säker	6 Ganska säker	7 Mycket säker
○	○	○	○	○	○	○

Vad var insättningsavgiften?

○ 0%

○ 0,5%

○ 1%

○ 2,2%

○ 2,4%

Hur säker är du på ditt svar? Svara på skalan nedan.

1 Mycket osäker	2 Ganska osäker	3 Något osäker	4 Tveksam	5 Något säker	6 Ganska säker	7 Mycket säker
○	○	○	○	○	○	○

Vad var uttagsavgiften?

○ 0%

○ 0,5%

○ 1%

○ 2,2%

○ 2,4%

Hur säker är du på ditt svar? Svara på skalan nedan.

1 Mycket osäker	2 Ganska osäker	3 Något osäker	4 Tveksam	5 Något säker	6 Ganska säker	7 Mycket säker
◯	◯	◯	◯	◯	◯	◯

Var detta en premiepension?

◯ Ja

◯ Nej

◯ Vet ej

Part Four Visual Memory

Del 4 av 7

I denna del kommer du att få se ekonomisk information presenterad i fondfaktablad. Fondfaktablad innehåller information om en fond som banker är skyldiga att visa och tillhandahålla kunder. Informationen har till syfte att användas som beslutsunderlag vid ett val av fond.

Det kommer att vara flera olika layouter på fondfaktabladen. Studera och memorera dessa, du kommer sedan att få frågor på innehållet. Då blocken i denna del presenteras i randomiserad ordning kommer frågor där du får beskriva dig själv ibland dyka upp efter ett fondfaktablad. Det är inte möjligt att backa tillbaka i undersökningen.

Part Four Visual Memory

Denna del är baserad på ett fondfaktablad som banker måste kunna visa och tillhandahålla kunder.
Efter texten nedan så kommer några frågor baserat på textens innehåll. Memorera texten och tryck dig sedan vidare för att komma till frågorna.

RISK/AVKASTNINGSPROFIL
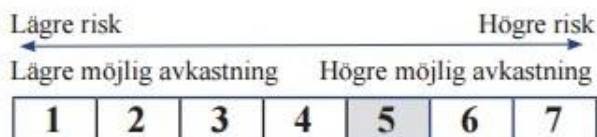
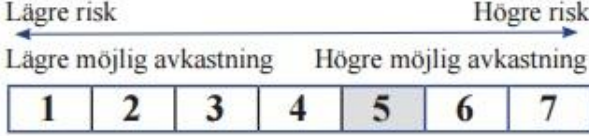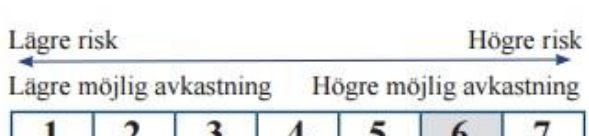**Fondens placering:** Den här fonden tillhör kategori 6, vilket betyder hög risk för både upp- och nedgångar i andelsvärdet. Kategori 1 innebär inte att fonden är riskfri. Fonden kan med tiden flytta både till höger och till vänster på skalan. Det beror på att indikatorn bygger på historiska data som inte är en garanti för framtida risk/avkastning.

Fonden placerar i företag noterade på aktiemarknader som generellt kännetecknas av hög risk, men också av möjlighet till hög avkastning (volatilitet).

Risker som inte visas i indikatorn: Indikatorn speglar de viktigaste riskerna i fonden, men inte risken för att, vid extrema förhållanden på aktiemarknaderna, inte kunna sätta in och ta ut ur fonden inom utsatt tid (likviditetsrisk). Kreditrisk, det vill säga risken att kreditvärdigheten hos en motpart försämras, vilket kan påverka värdet på värdepapperet. Fondförvaltarna bedömer kreditvärdigheten på placeringarna löpande. Fondens storleksgräns är för tillfället 4 miljarder kronor.

Vilken riskindikator var med på bilden du såg tidigare?

Hur säker är du på ditt svar? Svara på skalan nedan.

1 Mycket osäker	2 Ganska osäker	3 Något osäker	4 Tveksam	5 Något säker	6 Ganska säker	7 Mycket säker
○	○	○	○	○	○	○

Part Four Visual Memory

Denna del är baserad på ett fondfaktablad som banker måste kunna visa och tillhandahålla kunder.

Efter texten nedan så kommer några frågor baserat på textens innehåll. Memorera texten och tryck dig sedan vidare för att komma till frågorna.

TIDIGARE RESULTAT

	2012	2013	2014	2015	2016
■ Hickory AB corporate bond	5	3,3	8	-2	2
■ Nasdaq OMX Credit SEK	2	4	6,1	-1	3

Diagramet visar fondens avkastning (resultat) efter avdrag för årlig avgift. Hänsyn har inte tagits till eventuella insättnings- och uttagsavgifter. Värdet för samtliga år är beräknat i svenska kronor och med utdelningar återinvesterade i fonden.

I diagramet visas också fondens jämförelseindex. Fonden avser inte att följa jämförelseindex. Fonden startade 2012.

Historisk avkastning är ingen garanti för framtida avkastning.

Vilken graf nedan fanns med i fondinformationen du såg på fondfaktabladet?

○

	2012	2013	2014	2015	2016
■ Hickory AB corporate bond	3	1,5	3,8	12	7
■ Nasdaq OMX Credit SEK	2	2,5	4	10,3	8

○

	2012	2013	2014	2015	2016
■ Hickory AB corporate bond	3,9	4,1	4,1	5	8
■ Nasdaq OMX Credit SEK	4	4,3	4,4	4,9	6,5

○

	2012	2013	2014	2015	2016
■ Hickory AB corporate bond	5	3,3	8	-2	2
■ Nasdaq OMX Credit SEK	2	4	6,1	-1	3

○

	2012	2013	2014	2015	2016
■ Hickory AB corporate bond	5,2	2,9	1,4	0	2
■ Nasdaq OMX Credit SEK	4	3,3	0,7	-0,1	1,5

○

	2012	2013	2014	2015	2016
■ Hickory AB corporate bond	8	3,3	2,1	0,8	-2,2
■ Nasdaq OMX Credit SEK	7,5	4	3,7	0,6	-4

Hur säker är du på ditt svar? Svara på skalan nedan.

1 Mycket osäker	2 Ganska osäker	3 Något osäker	4 Tveksam	5 Något säker	6 Ganska säker	7 Mycket säker
○	○	○	○	○	○	○

Part Four Visual Memory

Denna del är baserad på ett fondfaktablad som banker måste kunna visa och tillhandahålla kunder.

Efter texten nedan så kommer några frågor baserat på textens innehåll. Memorera texten och tryck dig sedan vidare för att komma till frågorna.
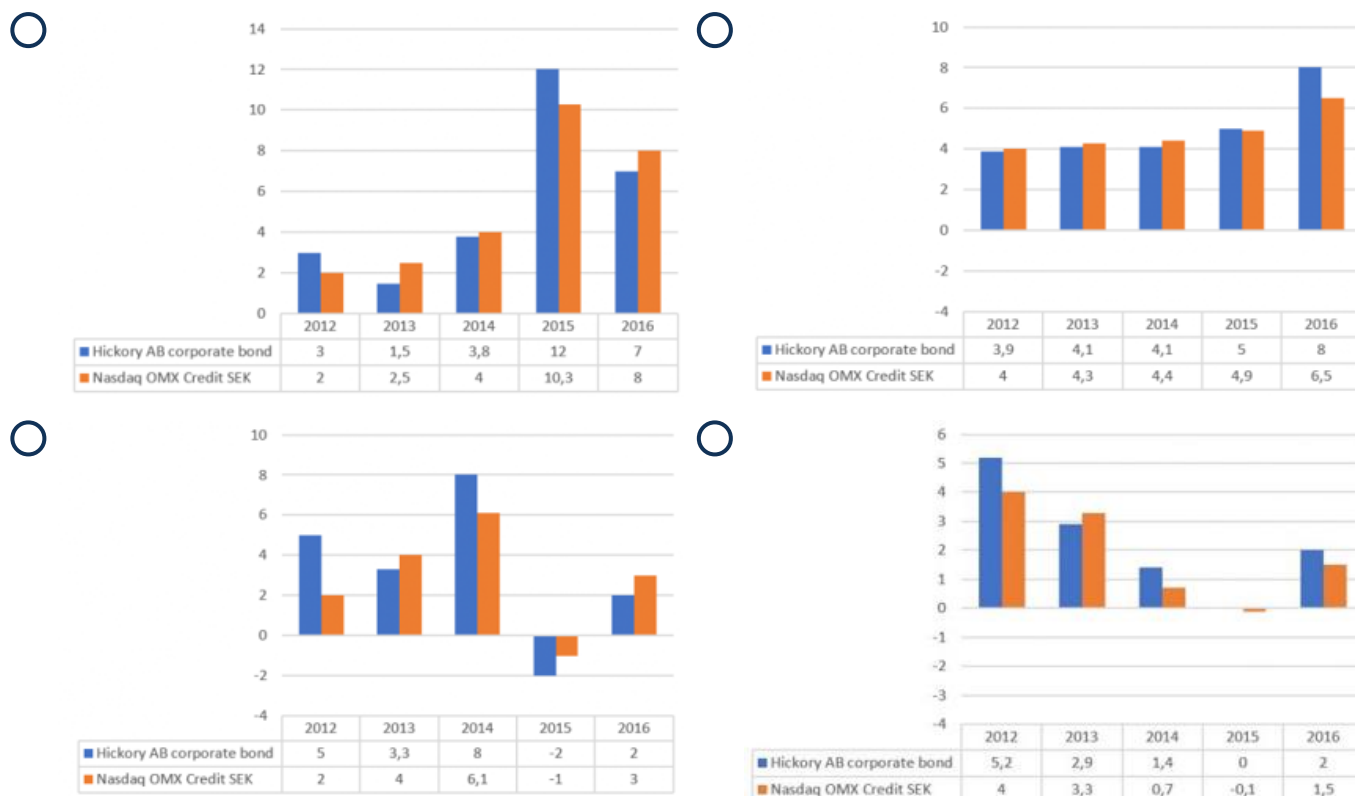
RISK/AVKASTNINGSPROFIL

Fondens placering: En fond med högre volatilitet innebär både ökad chans för högre avkastning men också en högre risk. I skalan ovan placeras fonders avgifter och avkastning i olika kategorier. Den gråmarkerade rutan i skalan ovan visar kategorin fonden tillhör. Kategori 1 innebär inte att fonden är riskfri. Fonden kan med tiden flytta både till höger och till vänster på skalan. Det beror på att indikatorn bygger på historiska data som inte är en garanti för framtida risk/avkastning.

Fonden placerar i företag noterade på aktiemarknader som generellt kännetecknas av hög risk, men också av möjlighet till hög avkastning (volatilitet).

Risker som inte visas i indikatorn: Indikatorn speglar de viktigaste riskerna i fonden, men inte risken för att, vid extrema förhållanden på aktiemarknaderna, inte kunna sätta in och ta ut ur fonden inom utsatt tid (likviditetsrisk). Kreditrisk, det vill säga risken att kreditvärdigheten hos en motpart försämras, vilket kan påverka värdet på värdepapperet. Fondförvaltarna bedömer kreditvärdigheten på placeringarna löpande. Fondens storleksgräns är för tillfället 4 miljarder kronor.

Ta ställning till följande påståenden om beslutsfattande. Svara på en sjugradig skala där 1 betyder "instämmer inte alls" och 7 "instämmer helt och hållet".

	1	2	3	4	5	6	7
Jag litar oftast på mitt första intryck när jag fattar ett beslut.	○	○	○	○	○	○	○
En sund beslutsprincip är att lita på "magkänslor".	○	○	○	○	○	○	○
När jag fattar beslut, är ofta min första instinkt den rätta.	○	○	○	○	○	○	○
Många gånger litar jag på min intuition när jag fattar beslut som rör mig personligen.	○	○	○	○	○	○	○
Jag tycker att jag har god intuition vid spontana beslutssituationer.	○	○	○	○	○	○	○

Vilken riskindikator var med på bilden du såg tidigare?

○ Lägre risk → Högre risk
Lägre möjlig avkastning   Högre möjlig avkastning
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

○ Lägre risk → Högre risk
Lägre möjlig avkastning   Högre möjlig avkastning
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

○ Lägre risk → Högre risk
Lägre möjlig avkastning   Högre möjlig avkastning
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

○ Lägre risk → Högre risk
Lägre möjlig avkastning   Högre möjlig avkastning
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

○ Lägre risk → Högre risk
Lägre möjlig avkastning   Högre möjlig avkastning
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Hur säker är du på ditt svar? Svara på skalan nedan.

1 Mycket osäker	2 Ganska osäker	3 Något osäker	4 Tveksam	5 Något säker	6 Ganska säker	7 Mycket säker
○	○	○	○	○	○	○

Part Four Visual Memory

Denna del är baserad på ett fondfaktablad som banker måste kunna visa och tillhandahålla kunder.

Efter texten nedan så kommer några frågor baserat på textens innehåll. Memorera texten och tryck dig sedan vidare för att komma till frågorna.

Vilken riskindikator var med i bilden du just såg?

○

○

○

○

○

Hur säker är du på ditt svar? Svara på skalan nedan.

1 Mycket osäker	2 Ganska osäker	3 Något osäker	4 Tveksam	5 Något säker	6 Ganska säker	7 Mycket säker
			○			

○   ○   ○   ○   ○   ○

Part Four Visual Memory

Denna del är baserad på ett fondfaktablad som banker måste kunna visa och tillhandahålla kunder.

Efter texten nedan så kommer några frågor baserat på textens innehåll. Memorera texten och tryck dig sedan vidare för att komma till frågorna.

TIDIGARE RESULTAT

	2012	2013	2014	2015	2016
Hickory AB corporate bond	8	3,3	2,1	0,8	-2,2
Nasdaq OMX Credit SEK	7,5	4	3,7	0,6	-4

Diagramet visar fondens avkastning (resultat) efter avdrag för årlig avgift. Hänsyn har inte tagits till eventuella insättnings- och uttagsavgifter. Värdet för samtliga år är beräknat i svenska kronor och med utdelningar återinvesterade i fonden.

I diagramet visas också fondens jämförelseindex. Fonden avser inte att följa jämförelseindex. Fonden startade 2012.

Historisk avkastning är ingen garanti för framtida avkastning.

Ta ställning till följande påståenden om beslutsfattande. Svara på en sjugradig skala där 1 betyder "instämmer inte alls" och 7 "instämmer helt och hållet".

	1	2	3	4	5	6	7
Jag oroar mig mycket över de beslut som jag har fattat.	○	○	○	○	○	○	○
Efter att jag har fattat ett beslut, går jag ofta tillbaka och granskar situationen på nytt.	○	○	○	○	○	○	○
När jag skall fatta nya beslut, försöker jag minnas tidigare (använd) information.	○	○	○	○	○	○	○
Ju mer information jag har, desto bättre beslut kommer jag att fatta.	○	○	○	○	○	○	○

	1	2	3	4	5	6	7
Jag funderar sällan på tidigare fattade beslut.	○	○	○	○	○	○	○

Vilken graf nedan fanns med i fondinformationen du såg på fondfaktabladet?

○

	2012	2013	2014	2015	2016
Hickory AB corporate bond	3	1,5	3,8	12	7
Nasdaq OMX Credit SEK	2	2,5	4	10,3	8

○

	2012	2013	2014	2015	2016
Hickory AB corporate bond	3,9	4,1	4,1	5	8
Nasdaq OMX Credit SEK	4	4,3	4,4	4,9	6,5

○

	2012	2013	2014	2015	2016
Hickory AB corporate bond	5	3,3	8	-2	2
Nasdaq OMX Credit SEK	2	4	6,1	-1	3

○

	2012	2013	2014	2015	2016
Hickory AB corporate bond	5,2	2,9	1,4	0	2
Nasdaq OMX Credit SEK	4	3,3	0,7	-0,1	1,5

○

	2012	2013	2014	2015	2016
Hickory AB corporate bond	8	3,3	2,1	0,8	-2,2
Nasdaq OMX Credit SEK	7,5	4	3,7	0,6	-4

Hur säker är du på ditt svar? Svara på skalan nedan.

1 Mycket osäker	2 Ganska osäker	3 Något osäker	4 Tveksam	5 Något säker	6 Ganska säker	7 Mycket säker
○	○	○	○	○	○	○

Part Four Visual Memory

Denna del är baserad på ett fondfaktablad som banker måste kunna visa och tillhandahålla kunder.

Efter texten nedan så kommer några frågor baserat på textens innehåll. Memorera texten och tryck dig sedan vidare för att komma till frågorna.

RISK/AVKASTNINGSPROFIL

Lägre risk   Högre risk

Lägre möjlig avkastning   Högre möjlig avkastning

1	2	3	4	5	6	7

Fondens placering: En fond med högre volatilitet innebär både ökad chans för högre avkastning men också en högre risk. I skalan ovan placeras fonders avgifter och avkastning i olika kategorier. Den gråmarkerade rutan i skalan ovan visar kategorin fonden tillhör. Kategori 1 innebär inte att fonden är riskfri. Fonden kan med tiden flytta både till höger och till vänster på skalan. Det beror på att indikatorn bygger på historiska data som inte är en garanti för framtida risk/avkastning.

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Risker som inte visas i indikatorn: Indikatorn speglar de viktigaste riskerna i fonden, men inte risken för att, vid extrema förhållanden på aktiemarknaderna, inte kunna sätta in och ta ut ur fonden inom utsatt tid (likviditetsrisk). Kreditrisk, det vill säga risken att kreditvärdigheten hos en motpart försämras, vilket kan påverka värdet på värdepapperet. Fondförvaltarna bedömer kreditvärdigheten på placeringarna löpande. Fondens storleksgräns är för tillfället 4 miljarder kronor.

Ta ställning till följande påståenden om beslutsfattande. Svara på en sjugradig skala där 1 betyder "instämmer inte alls" och 7 "instämmer helt och hållet".

	1	2	3	4	5	6	7
Innan jag fattar ett beslut, funderar jag ut det mest effektiva sättet att ta itu med beslutsproblemet.	○	○	○	○	○	○	○
I allmänhet förlitar jag mig på noggranna resonemang när jag fattar beslut.	○	○	○	○	○	○	○
Jag fattar mina bästa beslut när jag noggrant sammanvägt all relevant information.	○	○	○	○	○	○	○
När jag fattar beslut försöker jag utvärdera betydelsen av all slags information.	○	○	○	○	○	○	○

	1	2	3	4	5	6	7
Jag försöker alltid vara väl förberedd innan jag börjar fatta beslut.	O	O	O	O	O	O	O

Vilken riskindikator fanns med på bilden du såg?

Hur säker är du på ditt svar? Svara på skalan nedan.

1 Mycket osäker	2 Ganska osäker	3 Något osäker	4 Tveksam	5 Något säker	6 Ganska säker	7 Mycket säker
O	O	O	O	O	O	O

Part Four Visual Memory

Denna del är baserad på ett fondfaktablad som banker måste kunna visa och tillhandahålla kunder.

Efter texten nedan så kommer några frågor baserat på textens innehåll. Memorera texten och tryck dig sedan vidare för att komma till frågorna.

TIDIGARE RESULTAT

	2012	2013	2014	2015	2016
Hickory AB corporate bond	3	1,5	3,8	12	7
Nasdaq OMX Credit SEK	2	2,5	4	10,3	8

Diagramet visar fondens avkastning (resultat) efter avdrag för årlig avgift. Hänsyn har inte tagits till eventuella insättnings- och uttagsavgifter. Värdet för samtliga år är beräknat i svenska kronor och med utdelningar återinvesterade i fonden.

I diagramet visas också fondens jämförelseindex. Fonden avser inte att följa jämförelseindex. Fonden startade 2012.

Historisk avkastning är ingen garanti för framtida avkastning.

Vilken graf nedan fanns med i fondinformationen du såg på fondfaktabladet?

○

	2012	2013	2014	2015	2016
Hickory AB corporate bond	8	3,3	2,1	0,8	-2,2
Nasdaq OMX Credit SEK	7,5	4	3,7	0,6	-4

○

	2012	2013	2014	2015	2016
Hickory AB corporate bond	3,9	4,1	4,1	5	8
Nasdaq OMX Credit SEK	4	4,3	4,4	4,9	6,5

○

	2012	2013	2014	2015	2016
Hickory AB corporate bond	3	1,5	3,8	12	7
Nasdaq OMX Credit SEK	2	2,5	4	10,3	8

○

	2012	2013	2014	2015	2016
Hickory AB corporate bond	5,2	2,9	1,4	0	2
Nasdaq OMX Credit SEK	4	3,3	0,7	-0,1	1,5

○

	2012	2013	2014	2015	2016
Hickory AB corporate bond	5	3,3	8	-2	2
Nasdaq OMX Credit SEK	2	4	6,1	-1	3

Hur säker är du på ditt svar? Svara på skalan nedan.

1 Mycket osäker	2 Ganska osäker	3 Något osäker	4 Tveksam	5 Något säker	6 Ganska säker	7 Mycket säker
○	○	○	○	○	○	○

Part Four Visual Memory

Denna del är baserad på ett fondfaktablad som banker måste kunna visa och tillhandahålla kunder.

Efter texten nedan så kommer några frågor baserat på textens innehåll. Memorera texten och tryck dig sedan vidare för att komma till frågorna.

TIDIGARE RESULTAT

	2012	2013	2014	2015	2016
Hickory AB corporate bond	3,9	4,1	4,1	5	8
Nasdaq OMX Credit SEK	4	4,3	4,4	4,9	6,5

Diagramet visar fondens avkastning (resultat) efter avdrag för årlig avgift. Hänsyn har inte tagits till eventuella insättnings- och uttagsavgifter. Värdet för samtliga år är beräknat i svenska kronor och med utdelningar återinvesterade i fonden.

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Ta ställning till följande påståenden om beslutsfattande. Svara på en sjugradig skala där 1 betyder "instämmer inte alls" och 7 "instämmer helt och hållet".

	1	2	3	4	5	6	7
Jag tycker att tumregler, som baseras på sunt förnuft, många gånger leder till bra beslut.	○	○	○	○	○	○	○
Enkla beslutsregler fungerar oftast bäst för mig.	○	○	○	○	○	○	○

	1	2	3	4	5	6	7
Jag försöker alltid vara väl förberedd innan jag börjar fatta beslut.	◯	◯	◯	◯	◯	◯	◯
Mitt första intryck av beslutsituationen visar sig oftast vara det korrekta.	◯	◯	◯	◯	◯	◯	◯
Många gånger när jag ser tillbaka på mina beslut, önskar jag att jag hade lagt ner mer energi på att granska alternativen.	◯	◯	◯	◯	◯	◯	◯

Vilken graf nedan fanns med i fondinformationen du såg på fondfaktabladet?

◯

	2012	2013	2014	2015	2016
Hickory AB corporate bond	3	1,5	3,8	12	7
Nasdaq OMX Credit SEK	2	2,5	4	10,3	8

◯

	2012	2013	2014	2015	2016
Hickory AB corporate bond	3,9	4,1	4,1	5	8
Nasdaq OMX Credit SEK	4	4,3	4,4	4,9	6,5

◯

	2012	2013	2014	2015	2016
Hickory AB corporate bond	8	3,3	2,1	0,8	-2,2
Nasdaq OMX Credit SEK	7,5	4	3,7	0,6	-4

◯

	2012	2013	2014	2015	2016
Hickory AB corporate bond	5,2	2,9	1,4	0	2
Nasdaq OMX Credit SEK	4	3,3	0,7	-0,1	1,5

◯

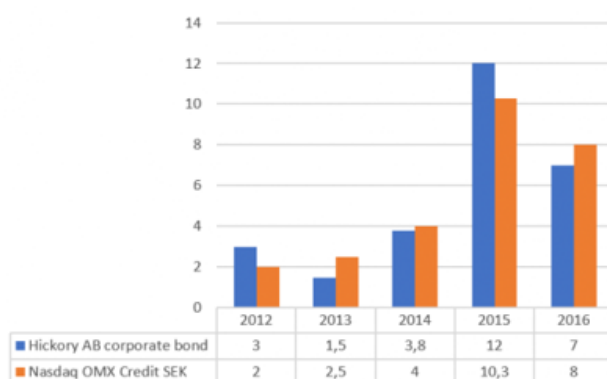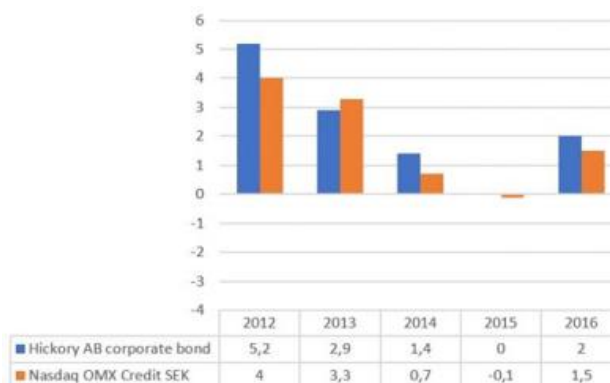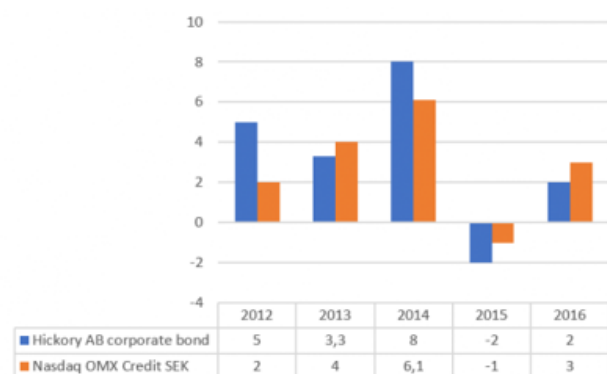|	2012	2013	2014	2015	2016
Hickory AB corporate bond	5	3,3	8	-2	2
Nasdaq OMX Credit SEK	2	4	6,1	-1	3

Hur säker är du på ditt svar? Svara på skalan nedan.

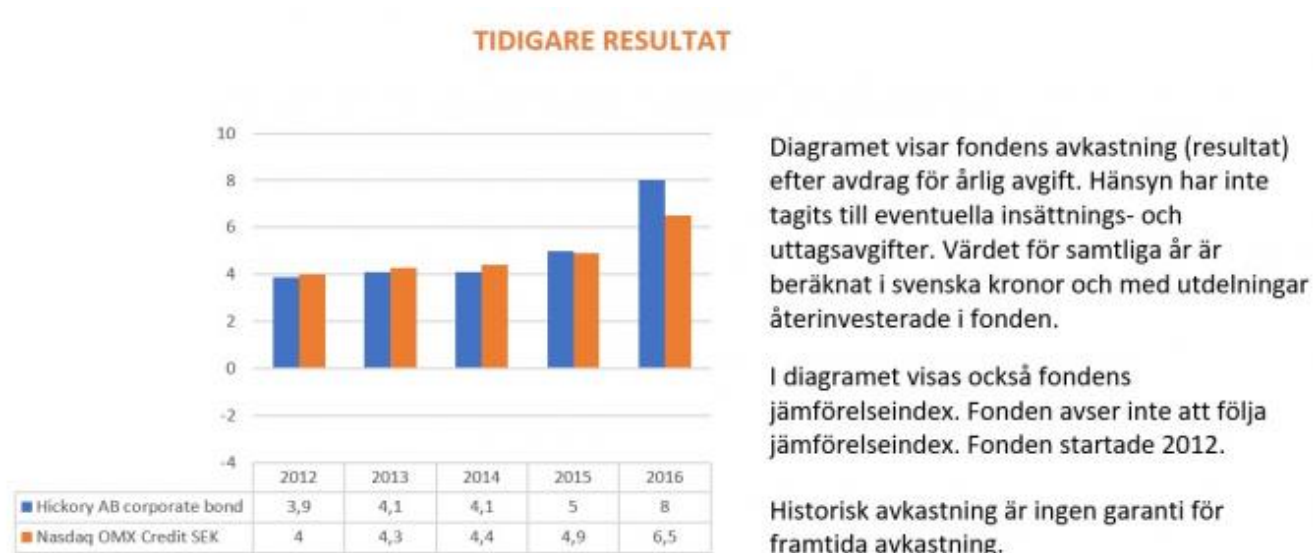| 1 Mycket osäker	2 Ganska osäker	3 Något osäker	4 Tveksam	5 Något säker	6 Ganska säker	7 Mycket säker
○	○	○	○	○	○	○

Part Four Visual Memory

Denna del är baserad på ett fondfaktablad som banker måste kunna visa och tillhandahålla kunder.

Efter texten nedan så kommer några frågor baserat på textens innehåll. Memorera texten och tryck dig sedan vidare för att komma till frågorna.

TIDIGARE RESULTAT

	2012	2013	2014	2015	2016
■ Hickory AB corporate bond	2,2	3,0	2,8	3,4	5,2
■ Nasdaq OMX Credit SEK	1,9	2,8	3,2	3,6	4,8

Diagramet visar fondens avkastning (resultat) efter avdrag för årlig avgift. Hänsyn har inte tagits till eventuella insättnings- och uttagsavgifter. Värdet för samtliga år är beräknat i svenska kronor och med utdelningar återinvesterade i fonden.

I diagramet visas också fondens jämförelseindex. Fonden avser inte att följa jämförelseindex. Fonden startade 2012.

Historisk avkastning är ingen garanti för framtida avkastning.

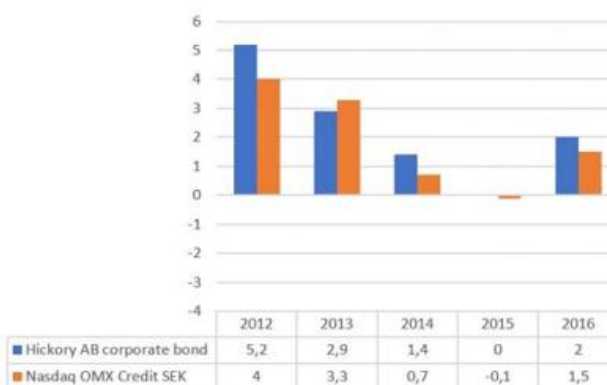Ta ställning till följande påståenden om beslutsfattande. Svara på en sjugradig skala där 1 betyder "instämmer inte alls" och 7 "instämmer helt och hållet".

	1	2	3	4	5	6	7
Jag vill vara metodisk när jag fattar beslut.	○	○	○	○	○	○	○
Mina bästa beslut grundas oftast på "snabba och enkla"-regler snarare än "sakta och säkra"-metoder.	○	○	○	○	○	○	○
Jag påverkas mer av oförväntade dåliga utfall än oförväntade bra utfall.	○	○	○	○	○	○	○

	1	2	3	4	5	6	7
Om jag skulle spela på kasino skulle jag satsa på enklare spel såsom enarmad bandit där man inte behöver tänka ut komplicerade strategier.	O	O	O	O	O	O	O
Jag tycker att ett rationellt, systematiskt tillvägagångssätt bör tillämpas vid beslutsfattande.	O	O	O	O	O	O	O

Vilken graf nedan fanns med i fondinformationen du såg på fondfaktabladet?

O

	2012	2013	2014	2015	2016
Hickory AB corporate bond	2,2	3,0	2,8	3,4	5,2
Nasdaq OMX Credit SEK	1,9	2,8	3,2	3,6	4,8

O

	2012	2013	2014	2015	2016
Hickory AB corporate bond	7,8	5,6	4,6	5,9	6,0
Nasdaq OMX Credit SEK	7,6	6,0	5,2	6,3	6,7

O

	2012	2013	2014	2015	2016
Hickory AB corporate bond	1,0	2,3	2,3	3,1	3,4
Nasdaq OMX Credit SEK	1,5	1,9	2,0	2,6	2,8

O

	2012	2013	2014	2015	2016
Hickory AB corporate bond	4,2	4,8	5,3	5,4	6,1
Nasdaq OMX Credit SEK	3,3	3,7	4,1	4,7	5,5

O

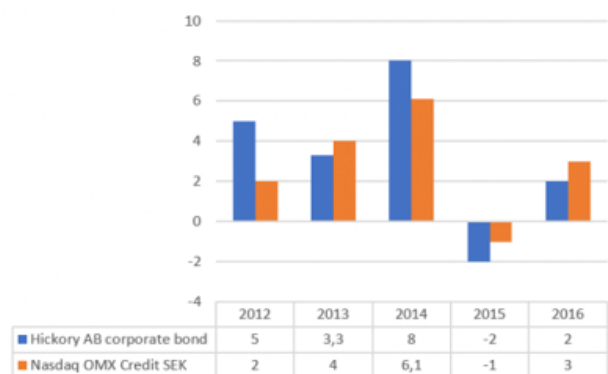|	2012	2013	2014	2015	2016
Hickory AB corporate bond	6,1	5,6	4,6	6,0	6,1
Nasdaq OMX Credit SEK	6,4	6,0	5,2	6,3	6,7
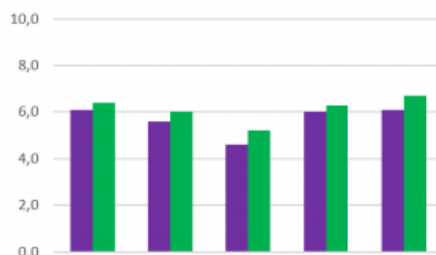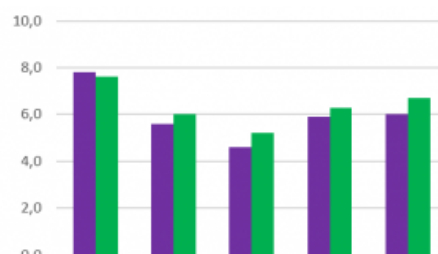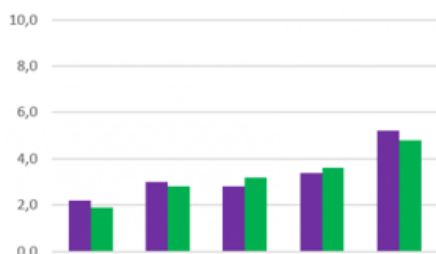
Hur säker är du på ditt svar? Svara på skalan nedan.

1 Mycket osäker	2 Ganska osäker	3 Något osäker	4 Tveksam	5 Något säker	6 Ganska säker	7 Mycket säker
○	○	○	○	○	○	○

Denna del är baserad på ett fondfaktablad som banker måste kunna visa och tillhandahålla kunder.

Efter texten nedan så kommer några frågor baserat på textens innehåll. Memorera texten och tryck dig sedan vidare för att komma till frågorna.

TIDIGARE RESULTAT

Diagramet visar fondens avkastning (resultat) efter avdrag för årlig avgift. Hänsyn har inte tagits till eventuella insättnings- och uttagsavgifter. Värdet för samtliga år är beräknat i svenska kronor och med utdelningar återinvesterade i fonden.

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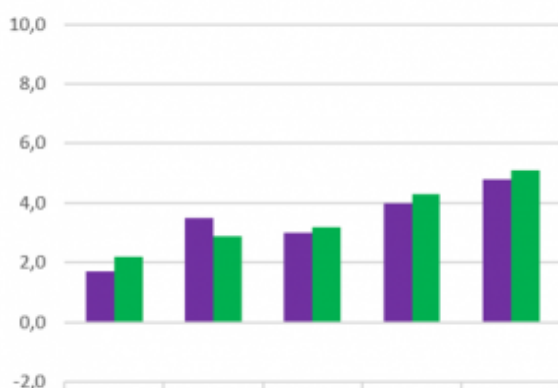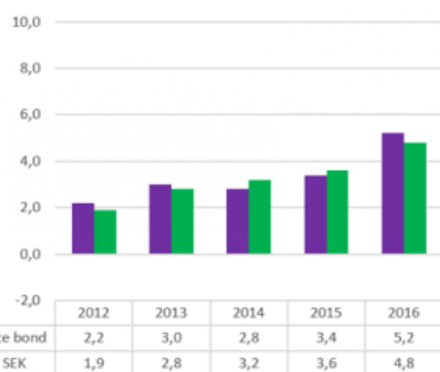
Historisk avkastning är ingen garanti för framtida avkastning.

	2012	2013	2014	2015	2016
Hickory AB corporate bond	1,7	3,5	3,0	4,0	4,8
Nasdaq OMX Credit SEK	2,2	2,9	3,2	4,3	5,1

Vilken graf nedan fanns med i fondinformationen du precis såg?
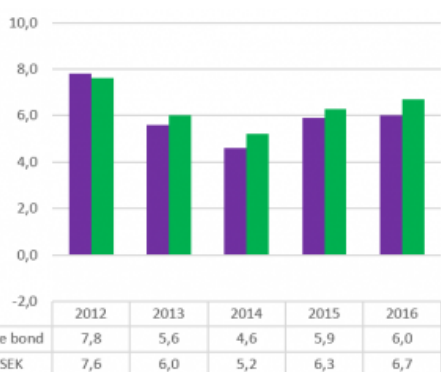
○

	2012	2013	2014	2015	2016
Hickory AB corporate bond	6,1	5,6	4,6	6,0	6,1
Nasdaq OMX Credit SEK	6,4	6,0	5,2	6,3	6,7

○

	2012	2013	2014	2015	2016
Hickory AB corporate bond	4,2	4,8	5,3	5,4	6,1
Nasdaq OMX Credit SEK	3,3	3,7	4,1	4,7	5,5

○

	2012	2013	2014	2015	2016
Hickory AB corporate bond	7,8	5,6	4,6	5,9	6,0
Nasdaq OMX Credit SEK	7,6	6,0	5,2	6,3	6,7

○

	2012	2013	2014	2015	2016
Hickory AB corporate bond	2,2	3,0	2,8	3,4	5,2
Nasdaq OMX Credit SEK	1,9	2,8	3,2	3,6	4,8

○

	2012	2013	2014	2015	2016
■ Hickory AB corporate bond	1,7	3,5	3,0	4,0	4,8
■ Nasdaq OMX Credit SEK	2,2	2,9	3,2	4,3	5,1

Hur säker är du på ditt svar? Svara på skalan nedan.

1 Mycket osäker	2 Ganska osäker	3 Något osäker	4 Tveksam	5 Något säker	6 Ganska säker	7 Mycket säker
○	○	○	○	○	○	○

Part Five Non-regulated Stimuli

Del 5 av 7

Denna del kommer att behandla ekonomisk information presenterad i annonsformat. Du kommer nu att få se två annonser för Hickory AB, ett fiktivt företag som här annonserar för att sprida information om deras överlägsna pensionsfond. Studera och memorera innehållet i annonserna i största möjliga mån. Frågor på innehållet kommer sedan när du klickar dig vidare. Det är inte möjligt att backa i undersökningen.

Studera annonsen från Hickory AB nedan. Klicka dig sedan vidare för att komma till frågorna kopplade till annonsen.

Betänk annonsen du precis studerat. Var vänlig återge allt du kan minnas i det öppna fältet nedan från annonsen du precis studerat.

Studera annonsen från Hickory AB nedan. Klicka dig sedan vidare för att komma till frågorna kopplade till annonsen.

Väx ditt kapital för framtiden

-Låt din pensionsfond växa maximalt med marknadsledande Hickory AB.

Styr din löpande avgift via kapitalinsättning. En högre insättning genererar lägre avgifter. En mindre uttagsavgift tillkommer.

Avkastning*

	Hickory pensionsfond	Närmsta konkurrent
Serie1	6,8%	4,3%

*Källa: Morgningstar.com

Löpande avgift på kapital

1%   0,5%   0,3%

Insatt kapital — Löpande avgift i procent

Betänk annonsen du precis studerat. Var vänlig återge allt du kan minnas i det öppna fältet nedan från annonsen du precis studerat.

Part Six Financial Literacy

Bra kämpat!

Du är nu framme vid den näst sista delen i undersökningen. Nedan följer några frågor som behandlar förståelse av ekonomisk information.

Anta att du har 100 kr på ett sparkonto med 2 procents ränta. Hur mycket tror du att du skulle ha på kontot efter 5 år om du låter pengarna växa på kontot: Mer än 102 kr,

exakt 102 kr eller mindre än 102 kr?

Mer än 102 kr   Exakt 102 kr   Mindre än 102 kr
○   ○   ○

Anta att räntan på ditt sparkonto är 1 procent och inflationen är 2 procent. Om du låter dina pengar stå på kontot i ett år, kommer du kunna köpa mer, lika mycket, eller mindre för pengarna vid årets slut?

Kan köpa mer   Kan köpa lika mycket   Kan köpa mindre
○   ○   ○

Är följande påstående sant eller falskt? Att köpa aktier i ett enstaka företag är vanligtvis säkrare än att köpa andelar i en aktiefond.

Sant   Falskt
○   ○

Part Seven Demographic

Till sist, vänligen fyll i lite beskrivande information om dig själv som ställs i frågorna nedan.

Ange din ålder (endast siffror)

[   ]

Kön

Kvinna   Man   Övrigt
○   ○   ○

Vilken är din högsta avklarade utbildning?

○ Gymnasieexamen

○ Universitets-/ högskoleutbildning mindre än 3 år

○ Universitets-/ högskoleutbildning 3 år eller mer

○ Yrkesexamen

○ Övrigt/ ingen

Vilken är din nuvarande sysselsättning?

○ Studerande

○ Arbetande

○ Pensionär

○ Arbetssökande

○ Övrigt

Har du studerat ekonomi på universitetet?

○ Ja

○ Nej

Hur intresserad är du av privatekonomi? På en skala mellan 1 och 7 där 1 = inte alls intresserad och 7 = mycket intresserad

	1	2	3	4	5	6	7
Intresse	○	○	○	○	○	○	○

Använder du dig utav någon form av sparande idag?

○ Ja

○ Nej

○ Vet ej

Vilken typ av sparande använder du?

☐ Sparkonto

☐ Fonder

☐ Aktier

☐ Obligationer

☐ Pensionsförsäkring

☐ Amorteringar av lån

☐ Övrigt

När du värderar hur dina fonder utvecklas, vad jämför du då med för att få en uppfattning om hur fonderna går?

☐ Anskaffningsvärdet

☐ Hur fonden har gått historiskt

☐ Andra fonders utveckling

☐ Rating på t.ex. Morningstar

☐ Stockholmsbörsens utveckling

☐ Övrigt

Vilken typ av sparande anser du är bäst för långsiktigt sparande (mer än 5 år)?

○ Sparkonto

○ Fonder

○ Aktier

○ Obligationer

○ Pensionsförsäkring

○ Amorteringar av lån

○ Övrigt

Vilken typ av sparande anser du är bäst för kortsiktigt sparande (mindre än 5 år)?

○ Sparkonto

○ Fonder

○ Aktier

○ Obligationer

○ Pensionsförsäkring

○ Amorteringar av lån

○ Övrigt

Intresserad av att ta del av slutsatserna från studien? Fyll i din mejl så återkommer vi i slutet av maj.

[   ]

Stort tack för ditt deltagande!

Lämna in dina svar genom att trycka på pilen nedan. Vi är oerhört tacksamma! :)

Powered by Qualtrics

Stort tack för ditt deltagande!

Lämna in dina svar genom att trycka på pilen nedan. Vi är oerhört tacksamma! :)