



## Stated and revealed investment decisions concerning retail structured products

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### ABSTRACT

We analyze the investment behavior of private clients with regard to retail structured products. To ascertain their stated and revealed preferences, we use a questionnaire and a field experiment. The real product issued in the field experiment is comparable to the hypothetical product in the questionnaire in terms of both payoff and communication. We find that a product described in simple words strongly motivates people to invest in structured products for the first time, and also eliminates gender differences. However, the real product attracts far fewer first-time buyers than we expected from the questionnaire results.

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### 1. Introduction

In recent years, finance theory has seen the importance of behavioral finance increase considerably. For example, in contrast to traditional finance theory, behavioral finance openly discusses the fear an investor has of losing his or her invested capital. Behavioral finance examines and explains the motives that drive investors in their investments. Another finding of behavioral finance is that the way a decision is formulated plays a significant role (framing effect). From the channel factors theory in psychology, we further know that when something is put into simpler terms, more people are willing to do it. We test whether this effect also occurs in investment decisions.

Our paper has four objectives. First, we test whether a retail structured product (structured product in the sequel), for which a bank has communicated the reasons to invest in an easily understood form, attracts investors more than do structured products that are presented in the traditional, technical style. Second, we conduct a comparison to establish whether the individuals who say they are going to buy the product theoretically really do so in practice. This comparison contributes to answering the

question of whether people really do what they say. Answers to this question also help us to determine whether surveys are an effective tool enabling banks to establish their clients' needs and motivations. Third, we also look at the sample from an efficiency point of view. Normally, client researchers question many people outside the bank. Is it really necessary to ask outside people, or could some of the bank's own employees be queried? And last, irrespective of possible objections to surveys, we further investigate the investment behavior that questionnaire participants have stated they will adopt from a behavioral finance perspective.

To ascertain the hypothetical investment behavior of potential investors, we use a questionnaire. The surveyed subjects consist of 68 bank employees who were selected to represent the overall bank population structure. A first part of the questionnaire elicits information about what drives subjects to invest. The second part of the questionnaire asks subjects how much they would invest in different types of structured products. These hypothetical products are constructed so as to contain various combinations of investment motives. These investment motives are communicated in laymen's terms, i.e., in a way that contrasts to the commonly used technical product descriptions. The latter often express the payoff by formulae, but we use examples.

To examine the true investment behavior of investors, we analyze real-life data by using the purchases registered when the Zurich Cantonal Bank issued a structured product, called ZinSMI<sup>®</sup>,

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whose payoff is comparable to one product from the questionnaire. Like the questionnaire product, the bank describes the ZinSMI in a way that is easy to understand.

We find that a communication of structured products which is easy to understand leads to a much higher percentage of first-time buyers than in the case of traditional communication. This provides evidence that the effect of the channel factors theory (e.g. Lewin (1951)) also occurs in investment decisions. It also confirms that choices can be manipulated by frames and other factors of a choice set that change the presentation of the choice but not its content.<sup>1</sup> Further, we find that individuals tend to announce that they will theoretically buy much more than they actually end up buying, and people who have not previously invested in structured products often overstate their willingness to buy, compared to what they actually do buy. This is evidence that attitudes depend on a context and may not exist in coherent form: See Bertrand and Mullainathan (2001) and Sudman et al. (1996) for a discussion of survey data and Bertrand et al. (forthcoming, 2005) for the importance of context in the decision making process. We also find that one group of the surveyed subjects behaves in a completely consistent manner within the behavioral finance model. They choose the products in the questionnaire that correspond to the optimal ones according to their investment motives which they announced at an earlier stage. But the other group of the surveyed subjects behaves in a completely inconsistent manner. The latter result is in line with the findings of Bertrand and Mullainathan (2001) that attitudes of individuals are quite unstable over time in questionnaire contexts. But we observe in the questionnaire consistency regarding diversification just as predicted by classical portfolio theory.

Risk behavior, risk attitude and risk perception are basic in this work. The circumstances for decision making in the questionnaire and the field experiment cannot be considered to be the same, although we made sure that some key variables – like the product description – are the same in both situations. The difference between announced and real investment can be because of a difference in context, i.e. risk attitude is an invariable characteristic but the risk perception is context dependent (see e.g. Betz et al. (2002)). The difference in context – or real versus hypothetical decision making – then leads to different risk behavior. Content-specific risk perception can also play a role in the field experiment where we analyze the impact of the product description on the purchase rate of first-time buyers. An easier product description can lead to a different risk perception, which results in a stronger willingness to purchase the product. But the product description in an easily understood form can also give rise to more people understanding the product and having confidence in the investment, with the corresponding impact on investment decisions. Which cause is in fact responsible for the increase in the purchase rate remains an open issue. Besides risk, ambiguity is an important issue in decision making – see Leippold et al. (2008), Betz et al. (2002), and Sarin and Weber (1993). In the questionnaire survey the subjects face a complete information setup with no uncertainty at all, i.e. any role played by ambiguity in decision-making can be excluded. In the real investment case ambiguity is an issue for the subjects because the law of the underlying process – the SMI index – which drives the future value of the investment is not known with certainty. Hence, individuals in some sense have to consider how they treat ambiguity in their decision making. In theory (see Trojani and Vanini (2002)) ambiguity leads to lower investments and lower market prices. Although there is a clear theoretical prediction, studies about behavioral decision making show that the interdependence

between risk and ambiguity and their implications for behavior is more subtle. Betz et al. (2002), for example, show that their ambiguity score is not correlated with the risk score if one considers risk taking in the financial domain.

Most existing literature of structured products concentrates on pricing issues (e.g. Stoimenov and Wilkens (2007)). As far as we know only Ofir and Wiener (2009) and Fischer (2007) consider investment behavior related to structured products. Ofir and Wiener find in an experiment that people favoring structured product investments tend to be affected by the behavioral biases in the area of decision making under uncertainty, such as loss aversion or probability distortion. Fischer uses a questionnaire to ask almost 800 individual investors for their reasons for investing in structured products. He finds that while rational strategies like diversification or reducing costs are important, betting aims also play a considerable role. In our sample we confirm his finding that a considerable percentage of the investors surveyed do not act as if they are maximizing expected utility.

To the best of our knowledge, however, no study compares hypothetical and real investment behavior in structured products. Dorn and Huberman (2005) confront the trading records of a German retail broker's clients with their stated attitudes toward investing in financial instruments in general but not specifically in structured products. Field experiments are conducted on the consumer credit market (Bertrand et al. (forthcoming, 2005)), on investors' tendency to hold losing investments too long and sell winning investments too soon (Odean (1998)), and of cumulative prospect theory (Gurevich et al. (2009)). Breuer et al. (2009) perform a laboratory experiment on financial instruments with sports betting components. Due to the fact that the Zurich Cantonal Bank issues a structured product comparable to one product from our questionnaire, we have the unique opportunity to compare hypothetical and real investment behavior in structured products.

In most studies that deal with structured products there is no focus on behavioral finance insights into their design and psychological effects into their marketing. Thus we are adding to the existing literature in several dimensions. We provide a deeper insight into the design of structured products from a behavioral finance perspective. The behavior finance approach underlying the structured products in the questionnaire consists of two parts. On the one hand, it describes the risk and return potential of the structured products by risk aversion, loss aversion, and gambling behavior. This description deviates from a classical finance approach, such as a mean-variance analysis. On the other hand, it considers the home bias. Karlsson and Nordén (2007) and Huberman (2001) argue that investors tend to invest in stocks they know well and are familiar with. Therefore, the choice of the SMI as the underlying instrument of the structured products ensures that the potential Swiss investors in the product are familiar with it. In contrast to the behavioral finance approach, mean variance does not consider the nationality of the stock but only its risk and return. Further, we test the effect of the channel factors theory of psychology (e.g. Lewin (1951)) in selling structured products. We focus on the framing effect (e.g. Kahneman and Tversky (1981)), and numerous pieces of evidence from laboratory experiments (Camerer et al. (2004)) and field experiments (Bertrand et al. (forthcoming, 2005)).

The paper is organized as follows: Section 2 describes the questionnaire designed to elicit investors' preferences for the structured products. Section 3 addresses the launch of a structured product in reality where both payoff and communication are comparable to those of the hypothetical product in the questionnaire. We draw conclusions from a comparison of the real with the hypothetical investment decisions. Section 4 sums up the findings.

<sup>1</sup> This evidence is reviewed in Camerer et al. (2004). Bertrand et al. (forthcoming, 2005) derive a measure of the effect of psychological manipulation on behavior relative to the magnitude of the price effect.

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