HOW DO PRICE PRESENTATION EFFECTS INFLUENCE CONSUMER CHOICE?
THE CASE OF INVESTMENT GUARANTEES IN UNIT-LINKED LIFE INSURANCE PRODUCTS

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Nadine Gatzert, Carin Huber, Hato Schmeiser*

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ABSTRACT

Attractive life insurance product design becomes increasingly important due to demographic change and a declining confidence in state-run pension schemes. Most life insurance contracts and especially unit-linked products are often offered with investment guarantees embedded in the savings part of the product. These guarantees can be of substantial value, since they ensure that at contract maturity, at least a minimum guaranteed amount is paid out, even if the mutual fund value falls below a guaranteed level. At the same time, regulatory authorities and customers currently ask for more cost transparency. Thus, it is important for insurance companies to know how price information should be presented to potential customers when promoting bundled offers or products that comprise a bundle. The aim of this paper is to measure effects of price bundling and price presentation of investment guarantees in unit-linked life insurance contracts on consumer evaluation of this product. This is done by means of an experimental study. Our findings reveal that contrary to, e.g., consumer products, for unit-linked life insurance products there is no effect of price bundling and price presentation on customer choice and evaluation.

Keywords: Behavioral Insurance, Behavioral Pricing, Investment Guarantees, Unit-linked Life Insurance, Price Presentation, Empirical Survey

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1. INTRODUCTION

Due to a declining confidence in state-run pension schemes as well as a considerable demographic change in most western countries, life insurance products offered by private insurance companies become increasingly important for old-age provisions. Beside a term life insurance component paying a death benefit, most life insurance contracts contain investment guarantees in the savings part of the product. In particular, investment guarantees in unit-linked life insurance policies typically ensure that a minimum amount is paid to the customer, even if the value of the mutual fund falls below a predefined guarantee level. Depending – among others – on the riskiness of the underlying fund and the contract's duration, such investment guarantees are of substantial value. Hence, risk adequate pricing and risk management of this kind of options are crucial from the viewpoint of an insurance company.

In this paper, we first aim to test whether customers’ willingness to pay actually exceeds the fair price of the investment guarantee calculated using risk-neutral valuation (the fair price can be interpreted as a reservation price for the provider of the product) based on an empirical survey. In particular, we will examine whether different forms of price presentations – i.e., a single up-front payment for the guarantee, monthly payments, or the guarantee price defined as an annual percentage of the value of the mutual fund – will influence consumers’ choice whether to purchase or not to purchase an investment guarantee. In a second step, we further allow for different forms of product bundling. In this context, identical products are offered to the participants of our empirical study showing the total price of the product versus viewing the pricing of all individual product components (i.e., term life insurance costs, investment guarantee costs, administration costs). This way, we are able to investigate to what extent different price presentations and product bundling exert an influence on customers' decisions and on their evaluation of the product.
The empirical analysis has been conducted using an online survey for a Swiss panel in the German and French speaking part of Switzerland that is representative with regard to region and gender. The survey was divided into three parts. In the first part, a product card has been shown to the participants for evaluation. The unit-linked life insurance product without the investment guarantee was exactly the same for all 748 participants, while there were 12 different price presentations forms of the additional guarantee. Every subsample only received one product card for evaluation, such that each card was answered by around 60 respondents.

Based on this representative sample, we tested four hypotheses. First, we examine whether consumer positive evaluations of an investment product increase as price information is bundled. Second, we study whether consumer positive evaluations of an investment product increase as price information is abstract (i.e., bundled). The third hypothesis tests whether the more experienced consumers are, the less likely they are sensitive regarding manipulations in the presentation of price information (bundle vs. abstractness). The fourth hypothesis investigates whether there are group differences in consumer evaluations regarding sociodemographics and socioeconomics.

To test these hypotheses regarding consumer evaluation, we first apply a multivariate analyses of variance (MANOVA) models based on consumer satisfaction and likelihood of recommending. In future work, we further plan to use logistic regressions in order to test the hypotheses regarding consumer evaluation based on their purchase intention. In addition, a principal component analysis is conducted with respect to the moderating variable “experience factor”.

One main finding of our first analyses of the empirical survey is that we cannot reject any of the four null hypotheses, implying that the bundling or abstracting of price information has no significant effect on consumer evaluations. We believe this result to be important, especially against the background that current regulatory efforts in most countries of the
European Union expect insurance companies to provide a detailed price presentation, including administration costs, to their customers. Hence, the aim of this paper is to derive information about possible changes in the customers' willingness to purchase insurance whenever a detailed price presentation of life insurance contracts is provided by the insurer. Further analyses with respect to the impact of experience will be vital to provide further insight regarding the reason for these observations.

The paper is structured as follows. Section 2 provides a survey of the relevant literature and theoretical background, based on which we derive four hypotheses as laid out in Section 3. The pricing framework of the unit-linked life insurance contract is presented in Section 4 using actuarial and financial concepts for pricing the different contract component and including mortality risk. Section 5 presents the framework of the empirical survey and details regarding the representative sample for Switzerland. Results and the hypotheses tests are presented in Section 6 and Section 7 concludes.
2. Literature Overview

Behavioral insurance

Previous literature on behavioural insurance has mainly focused on the impact of insurance company insolvency risk on customer WTP. We extend this research by investigating customer choice of a unit-linked life insurance product and a minimum interest rate guarantee under different price presentation effects. To the best of our knowledge, this paper is the first to study price presentation effects regarding price bundling and price abstractness concerning investment guarantees, here for the case of investment guarantees in unit-linked life insurance products. Based on research (e.g., Wakker, Thaler, and Tversky, 1997; Zimmer, Gründl, and Schade, 2008; Zimmer, Schade, and Gründl, 2009) examining WTP for insurance products with default probability, we assume that price presentation has a great impact in customer evaluation of the same unit-linked life insurance product.

Prospect theory, framing, and mental accounting

The value of guarantees in unit-linked life insurance contracts may differ depending on the perspective from which they are viewed. On the one hand, an insurer is in general able to calculate the appropriate premium for investment guarantees assuming a duplication of the cash flows using, e.g., risk-neutral valuation technique. Customers, on the other hand, are not necessarily able to replicate cash flows or claims to the same extent as the insurer and may thus assess the value of investment guarantees based on preferences. In addition, it may not be appropriate to assume a “homo oeconomicus” when it comes to evaluate different product offers. Thus, customer evaluation and thus customers choice may be quite different from what financial theory suggests. To elicit customer evaluation, we conduct an experimental study, explained below.
People use different mental models when making decision, especially in respect to risky or probabilistic choices, and these mental models are often inconsistent with the basic principles of expected utility theory (for an overview, see, e.g., Camerer and Loewenstein, 2003). Based on these findings, Kahneman and Tversky (1979) began to contradict expected utility theory with prospect theory in their work. Many biases and heuristics have been examined since this theoretical breakthrough (Tversky and Kahneman, 1974). The purchase of insurance contracts in particular leads to a substantial amount of irrational behaviour. The mental models believed to be in play during insurance purchase decisions include the following:

- anchoring, i.e., the adjustment on an initial value (Tversky and Kahneman, 1974);
- an availability bias, i.e., the evaluation depends on how easily something comes to mind (Tversky and Kahneman, 1973);
- a certainty effect, i.e., the overweighting of certain outcomes relative to probable outcomes (Allais, 1953; Tversky and Wakker, 1995);
- framing, i.e., reliance on how information is presented (Tversky and Kahneman, 1981, 1986; Kahneman and Tversky, 1984);
- loss aversion, i.e., losses loom larger than corresponding gains (Tversky and Kahneman, 1991);
- mental accounting, i.e., the dividing of current and future assets into separate, non-transferable portions (Thaler, 1999);
- wishful thinking, and overconfidence, e.g., by overestimating own knowledge and ability to control events, while underestimating risks (Barberis and Thaler, 2005);
- risk perception (Slovic, 1972; Slovic et al., 1977) or an overestimation of probabilities (Johnson et al., 1993).

Furthermore, according to Kahneman and Tversky (1979) and Tversky and Kahneman (1991, 1992), every individual has a personal reference point through which the value function passes (see Figure 1). In prospect theory, Kahneman and Tversky distinguish between two phases of the decision-making process. In the first phase, the editing phase,
the offered prospects are analyzed and simplified on the basis of heuristics and biases. One of the major operations of this phase is the so-called coding, meaning that the individual defines alternative outcomes as either gains or losses relative to some reference point. The reference point and its location, and thus the consequent coding of outcomes as gains or losses, are suggested or implied by how the problem is stated and are largely determined by the objective status quo (e.g., current assets). However, they are also affected by the decision maker’s expectations or social comparisons. Based on this first phase of the decision-making process, the value function (denoted with \( v \) in Figure 1) can be generated, which will be accomplished in the second phase, the evaluation phase.

As Figure 1 shows, this value function \( v \) is concave for \( x > 0 \) (\( v''(x) < 0 \)), convex for \( x < 0 \) (\( v''(x) > 0 \)), steeper for losses than for gains, and steepest at the reference point (hence, \( v'(x) < v'(-x) \) for \( x \geq 0 \)). In that phase, the decision maker appraises the edited prospects and chooses the one with the highest value. The decision will be made according to this value function and reference point. Thus, the reference point serves as a boundary when evaluating outcomes, distinguishing gains from losses, whereas the location of the reference point is individually defined during the editing phase. Thus, prospect theory is an important prediction in encoding and evaluating price information.

**Figure 1:** Value function of prospect theory (Kahneman and Tversky, 1979)
Furthermore, mental accounting plays an important role in consumer evaluation of price information. Mental accounting builds up on the properties of prospect theory and its value function, and predicts that gains (losses) take a higher (lower) value when they are presented individually (in a combination), see Thaler 1985 and 1999. Thus, how consumers mentally account for multiple gains (1) and multiple losses (2) can be formally described in the following two inequalities

\[
[v(x) + v(y)] > [v(x + y)], \text{ for all } x, y > 0, \quad (1)
\]

\[
[v(-x) + v(-y)] < [v(-(x + y))], \text{ for all } x, y > 0, \quad (2)
\]

where \( x \) and \( y \) are gains (respectively losses), and \( v(x) \) and \( v(y) \) is the value of the gains (respectively losses). The two arguments show that in the case of gains (Equation 1), where the value function is concave and more flat, consumer prefer separating two positive events, thus, receiving several small gains than one large gain of the same amount. In the case of losses (Equation 2), where the value function is convex and steeper, consumer prefer one single loss instead of several small losses of the same amount. Particularly Equation 2 has to be considered in our model framework since we assume that insurance payments (especially for investment guarantees) are perceived more as losses than as gains or savings.

*Price presentation and price bundling*

Consumers are sensitive to price presentation effects and the framing of price information (partitioned vs. consolidated prices), see, e.g., Chakravarti et al, 2002; Drumwright, 1992; Johnson et al., 1999; Puto, 1987; Yadav and Monroe, 1993. Thus, price presentation plays an important role in pricing policies regarding the subjective perception of customers (Diller, 2000; Diller and Herrmann, 2003).
Bundling, i.e., packaging two or more services or products, often for a special price (Guiltinan, 1987), is used in many industries as successful marketing strategy. Academic literature investigated mainly how products and services can optimally be combined (Hanson and Martin, 1990; Bell, 1986; Guiltinan, 1987). Furthermore, psychological aspects have been examined, particularly regarding the evaluation process of bundled products, as e.g., anchoring and adjusting models (see e.g., Gaeth et al, 1991; Yadav, 1994). The theoretical basis for the psychological research stream builds up on above explained prospect theory and mental accounting and uses reference price concepts. Additionally, academic literature emphasises customer's evaluation of bundled offers and the importance of price presentation and framing effects (Johnson et al. 1999; Mazumdar and Jun, 1993; Yadav and Monroe, 1993; Yadav, 1994). However, the research stream on price bundling often focus on the effect of embedded price discounts and the perceived savings (for an overview see e.g., Krishna et al. 2002). Chakravarti et al. (2002) and Morwitz et al. (1998) investigate the effects of partitioned prices, i.e., separate price for each component, (vs. consolidated prices, i.e., single, equivalent price) on customers' evaluation and show that there is a lower price perception and a higher repurchase intention if price information is partitioned. Contradictory to these studies, are the results of Beshears et al. (2010). Investigating retirement saving products, they find that an increase of cost transparency, which corresponds to partitioned price information, does not affect portfolio choice. Thus, the above findings might vary in the case of long-term saving products, as e.g., unit-linked life insurance products. Beside this study, only little effort has been made to investigate the role of price presentation and price bundling in long-term saving products, and particularly in unit-linked life insurance products, and their effect on customers' evaluation. An overview of heuristics and biases for these products offers Benartzi and Thaler (2007). Thus, in our study, we aim to investigate if consumers evaluations vary, if price information is differently presented and the sum of the bundled components and the total price are exactly equivalent. Hence, we analyse whether there is a price presentation format (regarding price framing, price bundling) that consumers prefer for the case of long-term saving products.
3. MODEL AND HYPOTHESES

Based on the previously presented literature and theoretical background, we derive the following model framework (see Figure 2) and deduce several hypotheses. The model setup consists of two independent variables, one dependent variable, and two moderating variables. The independent variables are bundling of the price information (bundled; partially bundled; debundled price) and price optic (respectively, abstractness of the price information), ranging from a no effect version (since the product offer contains no guarantee; this version is used for comparative reasons) to an single up-front guarantee payment, to monthly guarantee payments, to guarantee costs in % of the annual fund value. Thus, the price optic variable becomes more and more abstract. These two independent variables constitute the product offers that the participants of the survey received for evaluation. Thus, the basis of the model framework is a 3x4 factorial design. The dependent variable is consumer evaluation of the offer, which is measured in two different analyses and includes:

a) The satisfaction with a product
b) The perceived likelihood of recommending the product to others
c) The purchase intention

The first analysis is based on the items satisfaction with the offer and the likelihood of recommending the offer (both on a 7 point scale). The second analysis is founded on the binary item purchase intention. Our experimental framework aims to measure whether the presentation of the price information (bundle vs. optic) has an influence on consumer evaluation and purchase intention. Furthermore, we provide two moderating variables, consisting of sociodemographic and socioeconomic attributes as well as experience of the consumer.
In this context, the following hypotheses are assumed:

H1: Consumer positive evaluations of an investment product increase as price information is bundled.

H2: Consumer positive evaluations of an investment product increase as price information is abstract.

The alternative hypotheses predict that the bundling or abstracting of price information has no effect on consumer evaluations.

H3: The more experienced consumers are the less likely sensitive regarding manipulations in the presentation of price information (bundle vs. abstractness)
H4: Regarding sociodemographics and socioeconomics, there are group differences in consumer evaluations.

The null hypotheses predict that there is no effect from price bundling and optic.
4. UNIT-LINKED LIFE INSURANCE CONTRACTS

To determine different price presentations and bundling of investment guarantees in unit-linked life insurance policies, we first model a base unit-linked contract without guarantee that contains a savings part invested in a mutual fund and a fixed death benefit $D$ that is paid out if the policyholder dies during the term of the contract. In case of survival until maturity $T$, the policyholder receives the value of the mutual fund, which yields a stochastic payoff at maturity in the base contract. For administration costs, a percentage $k$ of the gross premium $P$ is charged. The risk premium for the death benefit payment is denoted by $P_D$ and subtracted from the gross premium. To ensure a minimum survival payoff, the base contract is then extended to further offer a constant guaranteed minimum payoff $G_T$ for an additional guarantee price $P_G$. The total premium paid into the contract including the additional costs for an investment guarantee thus split up into four components:

**Figure 3**: Premium decomposition of base contract with and without guarantee

<table>
<thead>
<tr>
<th>Base contract (no guarantee)</th>
<th>Gross premium $P$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Risk premium for death benefit $P_D$</td>
</tr>
<tr>
<td></td>
<td>- Administration costs $kP$</td>
</tr>
<tr>
<td></td>
<td>= Savings premium $P_S$ (invested in mutual fund).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Base contract with guarantee</th>
<th>Gross premium $P$ + Investment guarantee costs $P_G$ (charged separately and in addition using different price presentations)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>= Total premium paid by policyholder.</td>
</tr>
</tbody>
</table>

In the following, we first describe the dynamics and contract features as well as pricing for the base contract without guarantee and then show how to determine the additional
guarantee costs. We thereby ensure that the guarantee costs are the same and only the price presentation differs (absolute costs as single and annual premium and annual percentage fee of the fund value) to isolate the effect of the price presentation on consumer choice.

### 4.1 The base contract

*Calculation of the risk premium*

The risk premium for the death benefit payment is determined using an actuarial pricing approach. The one-year table probability of death of an \( x + t \) year old male life insurance policyholder is given by \( q_{x+t}, t = 0, \ldots, T - 1 \), and \( \ell_p \) denotes the probability that an \( x \) year old male life insurance policyholder will survive \( t \) years. For the mortality rates, the table of the German Actuarial Association DAV 2008 T is used.

In case of death during policy year \( t \) (between time \( t - 1 \) and \( t \)), the death benefit \( B \) is paid in arrears at the end of the year, i.e., at time \( t \in \{1, \ldots, T\} \). According to a standard actuarial valuation (see, e.g., Bowers et al. (1997)), the premium is determined based on the equivalence principle and hence based on the actuarial assumptions of a constant annual actuarial interest rate \( r_d \) (which in the following corresponds to the discrete riskless interest rate) and probabilities of death according to the mortality table. For an insured age \( x \) at inception of the contract, the annual and single premiums are thus given by

\[
P_{D, \text{annual}}^{\text{annual}} = D \cdot \sum_{t=0}^{T-1} p_x \cdot q_{x+t} \cdot (1 + r_d)^{-t}.
\]

\[
P_{D, \text{single}} = D \cdot \sum_{t=0}^{T-1} p_x \cdot (1 + r_d)^{-t}.
\]  

\[ (1) \]
Modelling the mutual fund

For the underlying mutual fund, we use the following model framework (see, e.g., Gatzert and Schmeiser, 2009; Lachance and Mitchell, 2003). In the case of constant annual savings premium payments $P_{s_{\text{annual}}}$ at time $t = 0, ..., T-1$, premiums are invested in a mutual fund and yield a stochastic payoff in $t_N = T$. The unit price of the mutual fund at time $t$ is denoted by $S_t$ and its development is described by a geometric Brownian motion with fixed average rate of return and standard deviation during the policy term. Hence, under the objective measure $\mathbb{P}$, it can be described by the following stochastic differential equation

$$dS_t = S_t (\mu dt + \sigma dW_t),$$

with $S_0 = S(0)$, a constant drift $\mu$, volatility $\sigma$, and a standard $\mathbb{P}$-Brownian motion $(W_t)$, $0 \leq t \leq T$, on a probability space $(\Omega, \Phi, \mathbb{P})$. In addition, $(\Phi_t)$, $0 \leq t \leq T$, denotes the filtration generated by the Brownian motion. The solution of the stochastic differential equation is given by (see, e.g., Björk, 2004)

$$S_t = S_{t-1} \cdot e^{(\mu - \sigma^2/2) dt + \sigma (W_t - W_{t-1})}$$

$$= S_{t-1} \cdot e^{(\mu - \sigma^2/2) dt + \sigma Z_t} = S_{t-1} \cdot R_t,$$

where $Z_t$ are independent standard normally distributed random variables. Hence, the continuous one-period return $r_t = \ln(R_t)$ is normally distributed with an expected value of $\mu - \sigma^2/2$ and standard deviation $\sigma$.

After subtracting the costs for administrative expenses and death benefit payment from the gross premium in the base contract, the savings premium
\[ P_{S_{\text{annual}}} = P \cdot (1 - k) - P_{D_{\text{annual}}} \]

is invested in the fund and the value of the investment in \( t \), \( F_t \), is given by

\[ F_t = \left( F_{t-1} + P_{S_{\text{annual}}} \right) \cdot \frac{S_t}{S_{t-1}} \quad (2) \]

and thus at time \( T \),

\[ F_T = P_{S_{\text{annual}}} \cdot \sum_{t=0}^{T-1} \frac{S_T}{S_t} \]

In the case of a single up-front premium, the savings premium is analogously invested as follows:

\[ F_T = P_{S_{\text{single}}} \cdot \frac{S_T}{S_0} \quad (3) \]

The payoff depends on the fund’s development over time and thus on future conditions in the financial market. Therefore, the terminal value of the investment can fall below, e.g., the sum of gross premium payments. To prevent such a default situation for the policyholder, unit-linked life insurance contracts are often offered with a guarantee providing a minimum payoff \( G_T \) of the investment at maturity \( T \). In the presence of an investment guarantee, the customer’s terminal payoff \( L_T^G \) consists of the value of the investment in the underlying fund, which will be at least the fixed guaranteed payment \( G_T \), i.e.,
and can thus be written as the value of the underlying assets plus a put option on this value with strike $G_T$.

### 4.2 Calculation of guarantee costs and price presentations

Without an investment guarantee, the survival payoff of the base contract is given by the value of the investment fund, and no additional costs will be charged. If an investment guarantee is included in the contract, the guarantee costs must be paid by the policyholder in addition to the ongoing premium payments and the provider must invest them in risk management measures such as hedging strategies, equity capital, or reinsurance. Its risk-adapted price is determined using risk-neutral valuation and in the empirical survey presented in different ways. First, a fixed single guarantee price is determined, second, an annual premium is calculated based on the single premium derived in the first step, and, as a third price presentation, a fixed percentage fee $\alpha$ is subtracted from the fund value at the end of each year.

**Absolute premium for the guarantee costs**

In the case of a “conventional fund” (i.e., with given average rate of return and standard derivation for the contract term), prices for investment guarantees at time $t = 0$ will be obtained under the unique equivalent martingale measure $Q$ (see Harrison and Kreps, 1979) where the drift of the unit price process changes to the riskless rate of return $r$, leading to

$$dS = S_t \left( rdt + \sigma dW_t^Q \right),$$
where $W^Q$ is a standard $Q$-Brownian motion. The value of the investment guarantee at time $t = 0$ is then given as the difference between the expected present value of the contract’s payoff under the risk-neutral measure $Q$ and the present value of the premiums paid, discounted with the continuous riskless interest rate $r$. According to Equation (4), this implies that the cost of the investment guarantee is the price of a European put option value on the mutual fund at maturity with strike $G_T$, weighted with probability of survival until maturity. Thus, the single up-front premium for the guarantee $P^\text{single}_G$ is given by

$$P^\text{single}_G = E^Q\left(e^{-rT} \cdot T \cdot p_x \cdot \max(G_T - F_T, 0)\right).$$

Using the Black and Scholes option pricing formula, closed-form solutions can only be derived in the case of a single up-front gross premium (see Equation (3)):

$$P^\text{single}_G = e^{-rT} \cdot T \cdot p_x \cdot E^Q\left(\max(G_T - F^\text{single}_T, 0)\right)$$

$$= T \cdot p_x \cdot \left(G_T \cdot e^{-rT} \cdot N(-d_2) - P \cdot N(-d_1)\right)$$

(5)

where

$$d_1 = \frac{\ln\left(\frac{P}{G_T}\right) + \left(r + \frac{\sigma^2}{2}\right)T}{\sigma \cdot \sqrt{T}}, \quad d_2 = d_1 - \sigma \cdot \sqrt{T}.$$ 

The annual guarantee costs are thus analogously to Equation (1) given by annuitizing the single payment,

$$P^\text{annual}_G = \frac{P^\text{single}_G}{\sum_{t=0}^{T-1} p_x \cdot (1 + r_d)^{-t}}.$$
Annual percentage fee for guarantee costs

Alternatively, guarantee costs can be charged by means of an annual percentage fee of the fund value at the end of each year. To make the case of an absolute guarantee premium and the annual percentage fee comparable, the same total annual premium is assumed to be paid by the policyholder as in the case where guarantee costs are paid separately and in addition to the gross premium of the base contract, i.e., \( P^{\text{total}} = P + P^{\text{annual}}_G \). Hence, the adjusted savings premium invested in the mutual fund is residually given by

\[
P^{\text{annual,} \alpha}_S = P^{\text{total}} \cdot (1 - k) - P^{\text{annual,} \alpha}_D = \left( P + P^{\text{annual,} \alpha}_G \right) \cdot (1 - k) - P^{\text{annual,} \alpha}_D.
\]

Thus, the sum of annual premium payments for the contract with guarantee when subtracting a percentage fee is the same as in the first price presentation when guarantee costs are charged in addition to the gross premium.

Let \( F_{t,-}^{\alpha} \) denote the value of the investment fund at the end of the \( t \)-th year before subtracting the fee and \( F_{t,+}^{\alpha} \) the value of the investment fund after subtracting the fee (after the first year for the first time), i.e.,

\[
F_{t,+}^{\alpha} = F_{t,-}^{\alpha} \cdot (1 - \alpha), \ t = 1, \ldots, T.
\] (6)

Thus, the development of the fund is described analogously to Equation (2) by

\[
F_{t,-}^{\alpha} = \left( F_{t,-}^{\alpha} + P^{\text{annual,} \alpha}_S \right) \cdot \frac{S_t}{S_{t-1}} = \left( F_{t,-}^{\alpha} \cdot (1 - \alpha) + P^{\text{annual,} \alpha}_S \right) \cdot \frac{S_t}{S_{t-1}}.
\] (7)

Due to the annual subtraction of the percentage fee, the fund value is reduced, which in
turn has an impact on the value of the investment guarantee (still fixed at $G_T$). From the insurer’s perspective, $\alpha$ has to be calibrated such that the expected present value of the fee income

$$I_G^\alpha = E^Q \left( \sum_{t=1}^{T} \alpha \cdot F_{t-}^\alpha \cdot p_x \cdot (1+r_d)^{-t} \right) = \sum_{t=1}^{T} \alpha \cdot p_x \cdot (1+r_d)^{-t} \cdot E^Q \left( F_{t-}^\alpha \right)$$

equals the actual value of the guarantee at time 0, i.e.,

$$P_G^\alpha = E^Q \left( \sum_{t=1}^{T} p_x \cdot (1+r_d)^{-t} \cdot \max \left( G_T - F_{T+t}^\alpha, 0 \right) \right).$$

Hence, the following must hold for a calibrated $\alpha$:

$$P_G^\alpha \stackrel{!}{=} I_G^\alpha.$$

Thus, for both price presentations of the guarantee costs (absolute and percentage fee) the policyholder pays the same annual premium.

### 4.3 Calibration of the model

For the empirical survey, the model is calibrated as follows: Contract duration $T = 10$ years, age of the male insured $x = 30$ years, the gross premium $P = 100$, administrative costs $k = 8\%$, the guarantee $G_T = 12,000$ (sum of gross premiums), which in the present setting corresponds to a guaranteed interest rate of 1.68\% on the savings premium. To enhance the understandability of the product, we provide monthly premiums in the questionnaire approximated by $P^{\text{monthly}} = P^{\text{annual}} / 12$. The resulting prices for different types of price optic and price bundling are laid out in Table 1.
Table 1: Calibrated premiums for empirical survey

<table>
<thead>
<tr>
<th>PRICE BUNDLING DIMENSION</th>
<th>PRICE ABSTRACTNESS DIMENSION</th>
<th>No Guarantee</th>
<th>Guarantee level: 12,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Single up-front guarantee costs</td>
<td>Monthly guarantee costs</td>
<td>Guarantee costs in % of the annual fund value</td>
</tr>
<tr>
<td>Bundling</td>
<td>100.00</td>
<td>100 per month + 543.52 up-front</td>
<td>105.00</td>
</tr>
<tr>
<td>Partial bundling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base contract</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td>Guarantee</td>
<td>0</td>
<td>543.52</td>
<td>5.00</td>
</tr>
<tr>
<td>No bundling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk premium</td>
<td>0.88</td>
<td>0.88</td>
<td>0.88</td>
</tr>
<tr>
<td>Savings premium</td>
<td>91.12</td>
<td>91.12</td>
<td>91.12</td>
</tr>
<tr>
<td>Administr. costs</td>
<td>8.00</td>
<td>8.00</td>
<td>8.00</td>
</tr>
<tr>
<td>Guarantee costs</td>
<td>0</td>
<td>543.52</td>
<td>5.00 per month</td>
</tr>
</tbody>
</table>

5. EMPIRICAL STUDY

Experimental design for variations in price presentation

To test the hypotheses and to examine under which price presentation conditions an additional interest rate guarantee is chosen, we conducted an empirical study using variations of price presentations of a unit-linked life insurance offer with a guarantee level of 12,000 at the end of the contract term. Each offer was for the same basic unit-linked life insurance product with or without an additional investment guarantee. The offers only differed in the price presentation of the additional guarantee, varying along 3 levels of price bundling and 3 levels of price abstractness (see Table 1). The bundling dimension consists of a single bundled price for the unit-linked life insurance product and the
investment guarantee, a partially bundled price, consisting of separate prices for the insurance and guarantee, and a debundled presentation, composed of separate prices for the guarantee, and the life insurance product itemizing the risk premium, savings premium, and the fees separately. The abstractness dimension consists of a product without any guarantee (and thus, no guarantee costs; this product serves as contrast product), and a product with an investment guarantee, presented as single up-front guarantee costs, monthly guarantee costs, and guarantee costs in % of the annual fund value. Thus, we find a 4 x 3 design, consisting of 12 different variations of price information. Table 2 summarizes the variation of the offer, corresponding to Table 1.

Table 2: Product offers corresponding to Table 1

<table>
<thead>
<tr>
<th>PRICE BUNDLING DIMENSION</th>
<th>PRICE ABSTRACTNESS DIMENSION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Guarantee</td>
</tr>
<tr>
<td></td>
<td>Single up-front guarantee costs</td>
</tr>
<tr>
<td>Bundled (Combined Price for Unit-Linked Life Insurance and Guarantee)</td>
<td>Offer 1</td>
</tr>
<tr>
<td>Partially Bundled (Prices for Unit-Linked Life Insurance and Guarantee are separately presented)</td>
<td>Offer 2</td>
</tr>
<tr>
<td>Debundled (Prices for Unit-Linked Life Insurance, splitted up into risk premium, savings premium and fees, and Guarantee are separately presented)</td>
<td>Offer 3</td>
</tr>
</tbody>
</table>

An example of a product card, which has been given to the customers for evaluation (here representing Offer 9) is provided in the Appendix. The product cards are identical over all
offers and differ only in the price presentation (lower part). They have been pretested from May 3, 2010 to May 4, 2010 in a small Swiss panel (n=106) regarding the understandability of the product card and the used termini. Accordant adjustments have been made, for example, avoidance of technical terms or definitions to explain inevitable technical terms.¹

*Sample and survey procedure*

The overall experimental design consisted of an online survey (originally in German and French) in which the evaluation of the product cards has been imbedded. Within a five day period from May 14, 2010 to May 17, 2010 the questionnaire had been answered by a Swiss panel. The sample of n = 748 is representative for Switzerland regarding gender and region (here only focusing the German and the French speaking part of Switzerland). Thus, there is a subsample of around n = 80 for each product card.

The survey was divided into three parts. In the first part, a product card has been shown to the participants for evaluation. As described before, the unit-linked life insurance product was exactly the same for all participants, while there were 12 different price presentations forms of the additional guarantee. Every subsample only received one product card for evaluation. The consumer evaluation included three dependent variables:

- the perceived satisfaction with the offer, measured on a 7 point scale from 1 (not satisfied) to 7 (satisfied),
- the likelihood of recommending the offer, measured on a 7 point scale from 1

¹ For the pretest, we gave the participants one product card (in this case, Offer 9) for evaluation. The evaluation included a question where participants evaluated the product regarding its overall understandability on a 7 scale from not at all understandable to absolutely understandable, a list of the used words, where the participants had to mark the words they did not understand, comprehension questions where the participants had to mark the right answers, as well as open questions where participants could address criticism and suggestions.
and the purchase intention, measured on a binary scale from 0 (no) to 1 (yes).

In the second part of the survey, the moderating variable “Consumers experience with financial and insurance products” has been measured. This included multiple measures regarding:

- Expertise in general using the items of Mishra, Umesh, and Stem (1993):
- Expertise on a personal level using the items of Mitchell and Dacin (1996):
- Expertise regarding the product prices using the items of Kopalle and Lindsay-Mullikin (2003):

However, the items have been adjusted for the insurance and financial product context and the scales have been unified to a seven-point scale ranging from 1 (Disagree) to 7 (Agree).

Additionally, for consumer experience, we asked for:

- If participants work in the area of insurance
- If participants work in the area of financial services (but not in the insurance)
- If participants completed/are completing an education, which involves knowledge about financial markets
- If participants know that life insurances generally contain investment guarantees (particularly in the form of reservation price interest rate promises)
- If participants own stocks
- How many pension fund or life insurance products participants own
- How many unit-linked products participants own

In the third part of the survey, sociodemographic and socioeconomic attributes have been
measured, as age, gender, living region, working situation, family status, household income (net), number of children under 18 years, educational level. Regarding the age of the participants, we only concentrated on 27 to 33 year olds due to mortality, and thus the calculation of the prices.

6. RESULTS OF THE EMPIRICAL SURVEY

Descriptive statistics

Table 3 displays the descriptive statistics and shows that the sample of this age group (25-35 years) is representative for Switzerland regarding gender and region, whereby the quota for region only focused on the German and French speaking part of Switzerland due to proportions. The majority of the participants has an apprenticeship (44.6%) or even a degree from university (37.6%) as highest educational level, works in a fulltime job (58.9%), is married (35.8%) or lives in a relationship (30.6%), and has no children under 18 years living in their household (64%). In addition, most participants have a net household income between CHF 3,000 and CHF 5,000 (30.7%) and between CHF 5,000 and CHF 7,000 (30.4%) per month. To summarize, the majority of our respondents have a solid educational background, a full-time job, and live with a partner (marriage or relationship) without children.
Table 3: Descriptive statistics

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td>474 (50.3%)</td>
<td>468 (49.7%)</td>
<td>942 (100%)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td>942 (100%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Region (of Switzerland)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>German speaking part</td>
<td>682 (72.4%)</td>
<td>249 (26.4%)</td>
<td>942 (100%)</td>
</tr>
<tr>
<td>French speaking part</td>
<td>942 (100%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italian speaking part</td>
<td>942 (100%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>7 (0.7%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Highest educational degree/diploma</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary School</td>
<td>54 (5.7%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apprenticeship School</td>
<td>420 (44.6%)</td>
<td>96 (10.2%)</td>
<td>942 (100%)</td>
</tr>
<tr>
<td>Secondary School</td>
<td>942 (100%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University / Technical College</td>
<td>354 (37.6%)</td>
<td>18 (1.9%)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>7 (0.7%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Actual Job Situation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time Job</td>
<td>555 (58.9%)</td>
<td></td>
<td>942 (100%)</td>
</tr>
<tr>
<td>Part-time Job</td>
<td>207 (22.0%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>38 (4.0%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retired</td>
<td>5 (0.5%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homemaker</td>
<td>85 (9.0%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student (full-time)</td>
<td>52 (5.5%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Household income per month (net, in TCHF)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 3</td>
<td>134 (14.2%)</td>
<td></td>
<td>942 (100%)</td>
</tr>
<tr>
<td>5 - &lt; 7</td>
<td>289 (30.7%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 - &lt; 9</td>
<td>286 (30.4%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 - &lt; 12</td>
<td>141 (15.0%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over 12</td>
<td>63 (6.7%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Family status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>337 (35.8%)</td>
<td></td>
<td>942 (100%)</td>
</tr>
<tr>
<td>In a relationship</td>
<td>288 (30.6%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widowed</td>
<td>39 (4.1%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>278 (29.5%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Children (under 18 years) living in the household</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No child</td>
<td>603 (64.0%)</td>
<td></td>
<td>942 (100%)</td>
</tr>
<tr>
<td>1 child</td>
<td>181 (19.2%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 children</td>
<td>124 (13.2%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 or more children</td>
<td>34 (3.6%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To test our hypotheses, we conduct two studies: Study 1 uses multivariate analyses of variance (MANOVA) models to test the hypotheses regarding consumer evaluation based on consumer satisfaction and likelihood of recommending as is done in, e.g., Bauer et al. (2006) or Johnson et al. (1999). Study 2 uses logistic regressions in order to test the hypotheses regarding consumer evaluation based on their purchase intention (this study is still in process). Furthermore, a principal component analysis is conducted in order to reveal the experience factor, our moderating variable.
Table 4 provides first insight regarding the cell means across product cards and illustrates that consumer evaluation of the 12 different product cards only marginally differs. For example, looking at the satisfaction with the offer, consumer evaluation ranges between 4.09 (Offer 8, partially bundled - monthly guarantee costs) and 3.55 (Offer 10, bundled price - guarantee cost in %) and are highest for Offer 3 (no guarantee - debundled). The same result can be observed with regard to the likelihood of recommending and the purchase intention. Even the average across the dimensions shows little variance of the means. The analysis of the data that has been conducted so far thus suggests that the presentation of price information has only a marginal impact on consumer evaluation. However, further analyses are needed in order to test the hypotheses.

Table 4: Cell means across product cards

<table>
<thead>
<tr>
<th>PRICE BUNDLING DIMENSION</th>
<th>PRICE ABSTRACTNESS DIMENSION</th>
<th>Satisfaction</th>
<th>Likelihood of Recommending</th>
<th>Purchase Intention</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bundled (Combined Price for Unit-Linked Life Insurance and Guarantee)</td>
<td>No Guarantee</td>
<td>3.88</td>
<td>3.78</td>
<td>3.82</td>
<td>3.55</td>
</tr>
<tr>
<td></td>
<td>Guarantee level: 12,000</td>
<td>3.54</td>
<td>3.41</td>
<td>3.50</td>
<td>3.34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.70</td>
<td>1.73</td>
<td>1.68</td>
<td>1.66</td>
</tr>
<tr>
<td>Partially Bundled (Prices for Unit-Linked Life Insurance and Guarantee are separately presented)</td>
<td>Satisfaction</td>
<td>3.58</td>
<td>3.59</td>
<td>4.09</td>
<td>3.56</td>
</tr>
<tr>
<td></td>
<td>Likelihood of Recommending</td>
<td>3.26</td>
<td>3.31</td>
<td>3.78</td>
<td>3.38</td>
</tr>
<tr>
<td></td>
<td>Purchase Intention</td>
<td>1.70</td>
<td>1.70</td>
<td>1.64</td>
<td>1.73</td>
</tr>
<tr>
<td>Debundled (Prices for Unit-Linked Life Insurance, splitted up into risk premium, savings premium and fees, and Guarantee are separately presented)</td>
<td>Satisfaction</td>
<td>3.95</td>
<td>3.58</td>
<td>3.79</td>
<td>3.58</td>
</tr>
<tr>
<td></td>
<td>Likelihood of Recommending</td>
<td>3.56</td>
<td>3.36</td>
<td>3.51</td>
<td>3.32</td>
</tr>
<tr>
<td></td>
<td>Purchase Intention</td>
<td>1.65</td>
<td>1.74</td>
<td>1.69</td>
<td>1.72</td>
</tr>
<tr>
<td>Average</td>
<td>Satisfaction</td>
<td>3.80</td>
<td>2.74</td>
<td>3.90</td>
<td>3.56</td>
</tr>
<tr>
<td></td>
<td>Likelihood of Recommending</td>
<td>2.59</td>
<td>3.36</td>
<td>3.60</td>
<td>3.35</td>
</tr>
<tr>
<td></td>
<td>Purchase Intention</td>
<td>1.69</td>
<td>1.73</td>
<td>1.67</td>
<td>1.70</td>
</tr>
</tbody>
</table>
Principal component analysis

We additionally conducted a principal component analysis with orthogonal rotation on the 12 collected items that relate to the participants’ experience with insurance and financial products. Results are displayed in Table 5.

Table 5: Principal component analysis, rotated factor loadings

<table>
<thead>
<tr>
<th>Factor Loading</th>
<th>Experience (indirect)</th>
<th>Experience (direct I)</th>
<th>Experience (direct II)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I enjoy telling people how much they might expect to pay for different insurance or investment products</td>
<td>.795</td>
<td>.189</td>
<td>.107</td>
</tr>
<tr>
<td>My family and friends seek my advice in purchase situations of insurance or investment products</td>
<td>.792</td>
<td>.242</td>
<td>.162</td>
</tr>
<tr>
<td>My friends think of me as a good source of price information</td>
<td>.756</td>
<td>.376</td>
<td>.249</td>
</tr>
<tr>
<td>I am considered somewhat of an expert when it comes to knowing the price of insurance or investment products</td>
<td>.749</td>
<td>.248</td>
<td>.276</td>
</tr>
<tr>
<td>I am an expert buyer in insurance or investment products</td>
<td>.596</td>
<td>.490</td>
<td>.279</td>
</tr>
<tr>
<td>I have a clear idea about which insurance or investment products I need</td>
<td>.162</td>
<td>.814</td>
<td>.071</td>
</tr>
<tr>
<td>I have a clear idea about which features in an insurance or investment product contract I need</td>
<td>.327</td>
<td>.788</td>
<td>.125</td>
</tr>
<tr>
<td>I am well informed about insurance or investment products</td>
<td>.415</td>
<td>.718</td>
<td>.264</td>
</tr>
<tr>
<td>I am familiar with insurance or investment topics</td>
<td>.424</td>
<td>.705</td>
<td>.290</td>
</tr>
<tr>
<td>My knowledge of insurance or investment products is little relative to an expert in this area</td>
<td>.252</td>
<td>-.067</td>
<td>.822</td>
</tr>
<tr>
<td>I know very little about insurance or investment products</td>
<td>.185</td>
<td>.444</td>
<td>.710</td>
</tr>
<tr>
<td>I am inexperienced in insurance or investment products</td>
<td>.192</td>
<td>.472</td>
<td>.690</td>
</tr>
<tr>
<td>Eigenvalue</td>
<td>6.577</td>
<td>1.066</td>
<td>1.064</td>
</tr>
<tr>
<td>% of variance</td>
<td>54.807</td>
<td>8.884</td>
<td>8.869</td>
</tr>
<tr>
<td>Cronbach's α</td>
<td>.869</td>
<td>.464</td>
<td>.766</td>
</tr>
</tbody>
</table>

The Kaiser-Meyer-Olkin measure, KMO = .93, verified the sampling adequacy for the analysis, and all KMO values for individual items were greater than .89. Bartlett's test of
sphericity resulted in $\chi^2 = 6870.570$, df = 66, $p < .001$, and shows that correlations of items were sufficiently large. We retained three factors with an Eigenvalue greater than one (6.577, 1.066, 1.064), explaining in combination 72.56 % of the variance. The component loadings are presented in Table 5. We call the first factor "Customer Experience (indirect)" since these items ask for customers' experience with insurance or investment products in an indirect way. Factor 2 and 3 are called "Customer experience (direct I)" and "Customer experience (direct II)", respectively, due to the direct measurements. However, due to the factor loadings and the values of Cronbach's $\alpha$, we only use the first factor as moderator variable in our model to test Hypothesis 3.

Study 1: MANOVA

In the first study, we use multivariate analyses of variance (MANOVA) models to test the hypotheses regarding consumer evaluation based on consumer satisfaction and likelihood of recommending. Hypothesis 1 predicts that consumer evaluation of the product increases as price information is bundled. Looking at the cell means in Table 4, no clear trend of an increase or decrease of customers' satisfaction or likelihood of recommending can be observed. Additionally, there is only a low variance of means and a centered tendency in the response behavior. MANOVA analyses confirm this observation. Using Pillai's trace criterion, there was no significant effect of the price bundling dimension on consumer evaluation, as $F(df = 4, errof df = 1878) = .099, p = .983$. This implies that there are no significant differences between bundled, partially bundled and debundled price conditions regarding the satisfaction with the product and the likelihood of recommending. Thus, Hypothesis 1 has to be rejected. Consumers' positive evaluation of an investment product does not increase as price information is bundled.

Hypothesis 2 predicts that consumer positive evaluations of an investment product increase as price information is abstract. Again, the cell means of Table 4 don't show any trend, but a strong centered tendency in the response behavior. This can be confirmed by
MANOVA. Pillai's trace does not show any significant differences between the initial up-front premium, monthly guarantee costs or guarantee costs in % regarding the satisfaction with the product and the likelihood of recommending, $F(df = 6, \text{errof } df = 1876) = 1.455, p = .19$. Therefore, Hypothesis 2 has to be rejected as well. The testing of Hypotheses 3 and 4 are in process, and we further plan to conduct a logistic regression to analyze our data in more depth.

7. IMPLICATIONS AND SUMMARY

In this paper, we examine whether customers’ willingness to pay for investment guarantees embedded in unit-linked life insurance products depends on price presentation and price optic of the guarantee costs by means of an empirical survey for a representative Swiss panel. We calculated the prices for the guarantees using risk-neutral valuation and interpret the fair price as a reservation price for an insurance company offering these kinds of guarantees to their customers. We then analyze if different forms of price presentations (i.e., single up-front payment for the guarantee; monthly payment; guarantee price as a percentage of the value of the mutual funds) influence consumers’ decision and evaluation of the contract. In addition, we allow for different forms of product bundling with respect to the price presentation. Here, products with identical present values are offered to the participants of the empirical study showing the overall price of the product versus viewing the pricing of the different product components (term life insurance with death benefit, investment guarantee in the savings part, administration costs).

It turned out from the empirical analysis that all tested hypothesis had to be rejected. No significant differences between the bundled, partially bundled and debundled pricing forms can be confirmed in this analysis. In addition, combinations of different forms of product bundling and the price abstractness dimension (guarantee prices in different absolute and relative terms) had no substantial impact on the decisions of the participants.
Hence, our findings differ compared to outcomes of similar empirical studies in the area of consumer goods (see, e.g., Johnson et al., 1999). One interpretation is that insurance products are very complex and therefore, differences in the price presentation are not a relevant part of the customers’ decision processes. Another reason could be that at least the participants in our sample turned out to be very rational decision makers and used in principle a present value calculation. While doing this, they may have realized in many cases that there are no differences between the product in respect to their present values (even though they received one product card only, respectively). In any case and taking into account that detailed price information may not be costless for the customers, current regulation efforts in many countries in the European Union that expect insurance companies to provide such kind of information to their customers might be reconsidered and subject to further empirical studies to confirm or reject the usefulness of such requirements. For insurance companies, the possibility to acquire new customers through product bundling and price presentation seems rather limited against the background of the first findings of this study.
APPENDIX

Figure: Example of a product card, here for Offer 9 (in German)

Stellen Sie sich vor, Sie möchten über die nächsten **10 Jahre** ca. **CHF 12'000** für Ihre Altersvorsorge in Form einer Lebensversicherung ansparen, indem Sie monatlich einen gewissen Betrag (Prämie) einzahlen. Sie haben nun die Möglichkeit, eine **fondsgebundene Lebensversicherung*** dafür abzuschliessen.


Ihre fondsgebundene Lebensversicherung enthält folgende Vertragskomponenten:

- **Auszahlung im Todesfall**: Bei Todesfall vor Laufzeitende erhalten Ihre Begünstigten einmalig eine Auszahlung in Höhe von **CHF 12'000**.

- **Auszahlung bei Laufzeitende (Erlebensfall)**: Ihre Prämien werden in einen Fonds mit mittlerem Risiko (50 % Schweizer Aktien (SMI) und 50 % Schweizer Staatsobligationen) angelegt. Der erwartete Wert des Fondsvermögens bei Laufzeitende beträgt **CHF 15'500**. Der tatsächliche Wert kann aber davon nach oben oder unten abweichen (= Streuung); dies ist vom Finanzmarkt abhängig.

- **Garantie**: Sie kaufen ausserdem eine Garantie. Diese stellt sicher, dass Sie bei Laufzeitende mindestens **CHF 12'000** zurückerhalten, falls sich Ihr Fonds ungünstig entwickelt haben sollte.

Über die 10 Jahre zahlen Sie hierfür insgesamt:

- **CHF 91.- pro Monat** Prämie für die Erlebensfallleistung (dieser Betrag wird in Ihren Fonds investiert)
- **CHF 1.- pro Monat** Prämie für die Todesfallleistung
- **CHF 8.- pro Monat** Kosten (Gebühren, Verwaltung etc.)
- **CHF 5.- pro Monat** Garantiekosten
REFERENCES


