Understanding consumers' multichannel choices across the different stages of the buying process

Sonja Gensler · Peter C. Verhoef · Martin Böhm

Abstract This article provides a more integrative approach toward channel choice than previous research by considering all stages of the buying process (search, purchase, and after-sales), and by taking channel attributes, experience, and spillover effects into account when examining consumers' channel choice intentions. The authors show that such an integrative perspective is important as channel attributes, experience, and spillover matter for consumers' channel choices in all stages of the buying process. Notably, the study stresses the importance of channel experience and spillover effects for explaining consumers' channel choice intentions in the different stages of the buying process. Channel experience effects occur when using the channel increases the likelihood that the consumer will use the very same channel on the next occasion. Spillover effects result when the likelihood of using a channel in one stage of the buying process affects the likelihood of choosing that channel in another stage. The results show that both effects influence consumers' channel choice intentions over and above channel attributes. Importantly, the model results strongly pledge for studying attribute, experience, and spillover effects simultaneously.

Keywords Multichannel management · Experience effects · Spillover effects · Consumer behavior

S. Gensler (✉) · P. C. Verhoef
Faculty of Economics and Business, Department of Marketing, University of Groningen,
P.O. Box 800, 9700 AV Groningen, The Netherlands
e-mail: S.Gensler@rug.nl

P. C. Verhoef
e-mail: p.c.verhoef@rug.nl

M. Böhm
Department of Marketing, IE Business School, Serrano 105, 28006 Madrid, Spain
e-mail: Martin.Boehm@ie.edu

1 Introduction

In the past decade, the number of different channels offered has changed significantly, presenting consumers with real choices in terms of their channel usage. To actively manage consumers' channel choices, firms need an understanding of the factors that affect consumers' channel choices across stages of the buying process (Neslin et al. 2006). Previous studies suggest that channel attributes (e.g., a channel's perceived convenience or risk), experience, and spillover effects influence consumers' channel choices. Channel experience effects occur when using a channel increases the likelihood that the consumer will use the very same channel on the next occasion. Spillover effects, however, result when the likelihood of using a channel in one stage of the buying process affects the likelihood of choosing that channel in another stage.

Yet, none of the existing studies has investigated channel attributes, experience, and spillover effects simultaneously. Most studies focus on explaining consumers' channel choices by channel attributes in one single stage of the buying process (e.g., Gupta et al. 2004; Strebel et al. 2004). Since these studies focus on one single stage of the buying process, they do not provide insights into the relative importance of channel attributes across stages of the buying process. Such knowledge is, however, important for channel design decisions, i.e., which attributes to improve in a particular stage of the buying process to manage consumers' channel choices effectively.

Studies that consider experience effects either ignore channel attributes (Dholakia et al. 2005; Thomas and Sullivan 2005) or only consider a consumer's general channel experience (Frambach et al. 2007). The former do not allow investigating whether consumers use a specific channel repeatedly because of its superior channel attributes or experience. The latter might underestimate the effect of channel experience because consumers' channel preferences might be context specific (Wood and Neal 2009).

Verhoef et al. (2007) take spillover effects and channel attributes into account when studying the research-shopper phenomenon. They find significant spillover effects, i.e., attitudes toward searching in a specific channel, positively affect attitudes toward purchasing in that channel and vice versa. Since they ignore experience effects, we lack knowledge whether spillover effects or experience effects are more prevalent for consumers' channel choices. If experience effects are more prevalent, influencing consumers' channel choices becomes difficult. If spillover effects are substantial, changing the channel design in one stage of the buying process affects consumers' channel choices in other stages as well. Such knowledge is crucial to make well-informed decisions on how to manage consumers' channel choices.

The current study offers a more integrative approach toward channel choice than previous studies. First, this study considers channel attributes, channel experience, and spillover effects when examining consumers' channel choices. Moreover, in this study we evaluate the relative importance of the different effects for consumers' channel choices. Second, this study takes the search, purchase, and after-sales stage into account. The latter stage was largely ignored in previous studies (only exception is Frambach et al. 2007), leaving us with limited knowledge about the relevance of channel attributes, experience, and spillover effects in this stage. The main

contribution of this study is to show that an integrative approach is important as channel attributes, experience, *and* spillover effects matter.

Given the complexity of such an integrative approach, the study is limited to a single industry context (i.e., retail banking) and on two different products (checking and brokerage accounts). We use a cross-sectional survey in which our primary dependent variable is channel choice intention, which we refer to as channel choice in the remainder of this paper.

We organize the remainder of this article as follows: In the next section, we discuss the different determinants that are likely to influence consumers' channel choices, followed by the outline of our data collection and measurement and our empirical modeling approach. We then provide the empirical results of the channel choice model in detail. Conclusions, managerial implications, limitations, and areas for further research constitute the final section.

2 Factors influencing consumers' channel choices

We use a utility-based model to explain consumers' channel choices in the different stages of the buying process (Strebel et al. 2004) in which we propose that channel utility reflects channel attributes, experience, and spillover. Previous studies only investigated a subset of these potential determinants of consumers' channel choices. We further take stage–channel as well as product–channel associations into account (Fig. 1). Stage–channel associations exist when consumers associate a certain stage of the buying process (e.g., purchase stage) with a particular channel (e.g., brick-and-mortar store) (Verhoef et al. 2007). Product–channel associations, however, occur when a given product is more closely associated with one channel than others (Inman et al. 2004).

Channel utility ultimately determines the likelihood that a consumer chooses a channel; the greater its utility, the higher the likelihood that a channel will be chosen. In the following paragraphs, we elaborate on each of the potential determinants of channel choice and state some specific research propositions.

2.1 Channel attributes

The effects of channel attributes on consumers' channel choices have been investigated in previous studies; it is well accepted that consumers' perceptions of channel attributes and their reactions to these attributes are central to channel utility and thus their channel choices (Verhoef et al. 2007). Literature has identified several central channel attributes: quality, price, convenience, and risk (e.g., Ganesh et al. 2010; Gupta et al. 2004; Verhoef et al. 2007). The importance of the different channel attributes for consumers' channel choices might differ across the stages of the buying process depending on the goals consumers pursue in each stage of the buying process (Balasubramanian et al. 2005; Huffman and Houston 1993; Lee and Ariely 2006). In the search stage, consumers strive for gathering accurate and relevant information that enables them to make well-informed decisions (Carlson et al. 2008). In the purchase stage, consumers are aiming for buying the selected product for the lowest price (Balasubramanian et al. 2005; Hamilton and Chernev 2010). Finally, in the after-sales
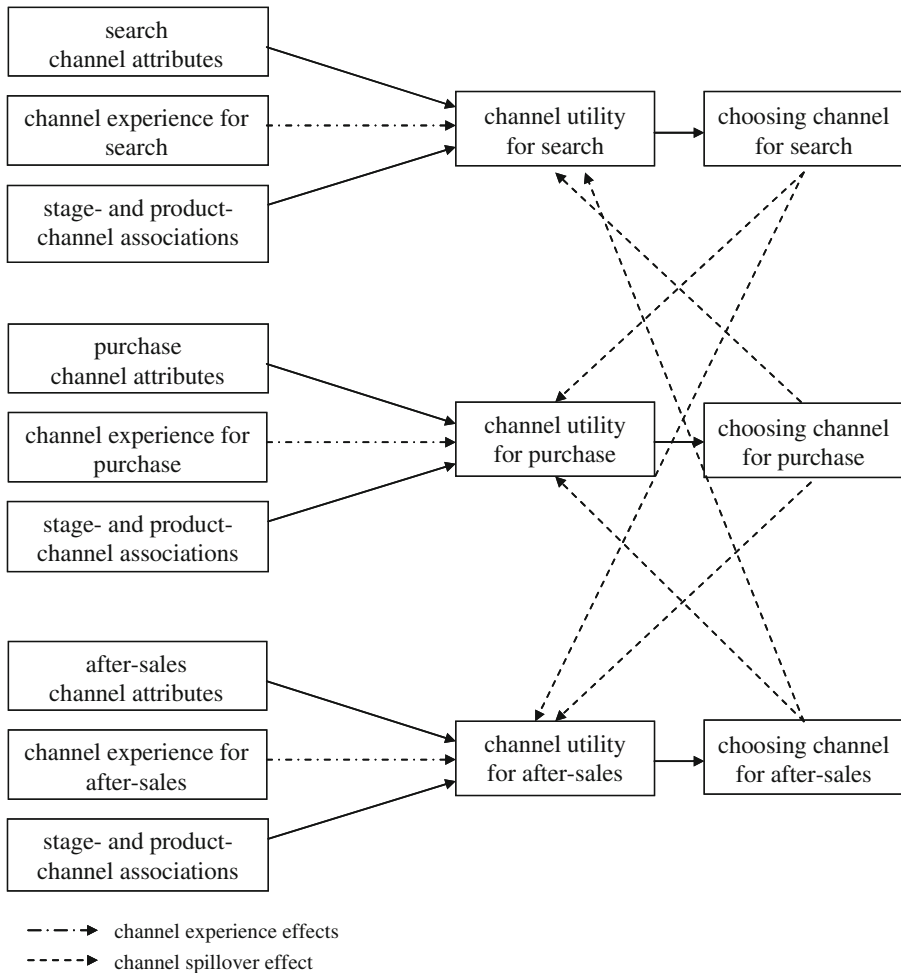
Conceptual framework

Fig. 1 Conceptual framework

stage, consumers want to minimize effort using the products and services (Keeney 1999).

Generally, prior literature shows that perceived quality of a channel, which is a channel's ability to satisfy the needs and fulfill the expectations of consumers, is positively related to consumers' channel choice (Strebel et al. 2004; Verhoef et al. 2007). Since consumers pursue a learning goal in the search stage (Carlson et al. 2008), a channel's perceived quality of providing relevant information seems critical in that stage. This might suggest that a channel's perceived quality is the most important channel attribute in the search stage.

Perceived price, which refers to the price, as encoded by the consumer, can also affect consumers' channel choices (Venkatesan et al. 2007). The higher the perceived price in a channel, the less likely consumers are to choose that channel (Verhoef et al.

2007). Consumers actually have to pay a price in the purchase stage and they aim for maximizing consumption utility by minimizing the cost to buy a product (Balasubramanian et al. 2005). Hence, one might expect that a channel's perceived price is the most important channel attribute in the purchase stage.

Perceived convenience, which refers to the perceived ease and speed with which a consumer can gather information, purchase a product, or conduct transactions, has in general a positive effect on consumers' channel choices (Frambach et al. 2007). This channel attribute seems especially relevant for consumers' channel choices in the after-sales stage in which consumers' goal is to consume the product with as little effort as possible (Keeney 1999). Hence, a channel's perceived convenience might be the most important channel attribute in the after-sales stage.

Finally, research discusses perceived risk as a hindrance that prevents consumers from using a specific channel (Meuter et al. 2005). Perceived risk represents a function of uncertainty about the potential outcomes of a behavior and the possible unpleasantness of these outcomes. Perceived risk can result from a poor product choice due to the consumer's inability to judge the quality of the product accurately when using a particular channel (Gupta et al. 2004). It can also result from an expected loss of money by a consumer (Sweeney et al. 1999). Although avoiding risk might not be a consumer's primary goal, loss aversion theory suggests that potential losses, such as implied by risk, might weigh heavier than potential gains, and thus risk might play an important role in all stages of the buying process (Kahnemann and Tversky 1979). Losses might, in particular, occur when consumers actually spend money. In our setting, this is the case in the purchase and after-sales stage (i.e., opening and managing brokerage account). We thus expect that risk is more relevant for consumers' channel choices in the purchase and after-sales stage compared to the search stage.

Overall, the above discussion suggests that the importance of channel attributes differs between search, purchase, and after-sales. However, we refrain from formulating propositions; rather, we aim to empirically assess these differences.

2.2 Channel experience

Independent of a channel's performance with respect to the channel attributes, consumers might be locked in to a specific channel, such as when the previous use of a channel increases the likelihood of using that channel again in the future (Johnson et al. 2003). Experience effects might thus appear as a specific type of channel loyalty. But unlike traditional notions of loyalty, channel experience does not require superior channel performance on specific channel attributes. Few studies in a multichannel context take previous channel use into account. Dholakia et al. (2005) and Thomas and Sullivan (2005) use customer transaction databases and consider whether a consumer has used a channel on the previous occasion. They find that prior channel choices affect subsequent channel choices in a specific usage situation positively. But both studies do not observe consumers' perceptions of channel attributes and can therefore not disentangle whether a channel's superior performance or channel experience is the main driver of consumers' channel choice. This distinction is, however, critical because it has consequences for how to manage consumers' channel choices. If a channel's superior performance is the reason why consumers use

that channel repeatedly, managers should change the perceptions of channel attributes to influence channel usage behavior. If experience effects drive consumers repeated use of a channel, managers have to find ways to overcome inertia.

Frambach et al. (2007) study the effect of channel attributes and stated channel experience on future channel usage intentions. They find that Internet experience is one of the main drivers of consumers' preference of the Internet channel. But their general definition of Internet channel experience ignores whether the consumers have experienced the channel in a specific usage situation; e.g., whether a channel has been used for gathering information about specific products. Since research shows that the usage situation plays an important role for habitual behavior which is reflected by the repeated use of a channel (Wood and Neal 2009), we expect that considering a specific usage situation when measuring consumers' channel experience might result in even stronger experience effects than proposed by Frambach et al. (2007).

Research further suggests that consumers might follow established buying routines and thus rarely compare different channels with respect to their attributes (Johnson et al. 2003). Consequently, consumers' channel experience in a specific usage situation might be more important than channel performance with respect to channel attributes. Following this line of reasoning, we propose:

P1:   Experience effects are more important for consumers' channel choices than channel attributes.

It might further be that the relevance of channel experience differs across the stages of the buying process, indicating that consumers are more willing to migrate from one channel to another in some stages. Experience effects might be especially important for consumers' channel choices if they developed a routine which likely occurs when they go through a stage of the buying process regularly (Balasubramanian et al. 2005). We thus propose:

P2:   Experience effects are more important in frequently recurring stages of the buying process compared to rarely recurring stages of the buying process.

2.3 Channel spillover

Independent of channel attributes and experience effects, consumers' channel choices might also be affected by channel spillover effects. Channel spillover effects occur if considering a channel in one stage of the buying process for a particular product affects that channel's utility and the likelihood of choosing that channel in another stage of the buying process for the same product (Verhoef et al. 2007). Literature suggests that channel spillover effects exist. For example, Bellman et al. (1999) note that searching for information online is the most important driver of online buying behavior. Moreover, Verhoef et al. (2007) find that attitudes toward searching in a specific channel positively affect attitudes toward purchasing in that channel and vice versa. These findings might be a consequence of consumers' quest for consistency (Staw 1981). Moreover, if two stages of the buying process coincide, that is there is (almost) no temporal delay between these two stages, consumers might tend to choose the same channel for both stages to avoid additional transaction costs and improve efficiency (Xue and Harker 2002). We thus propose:

P3: Channel spillover effects are more important for stages of the buying process which tend to coincide.

However, using a channel for one stage requires different consumer expertise (i.e., ability to perform channel-related task successfully) than using the channel for another stage of the buying process. These differences in expertise might lessen potential efficiency gains by using the same channel in two subsequent stages. In contrast, direct channel experience influences a consumer's familiarity with that channel and, in turn, reduces the effort needed to perform a task (Alba and Hutchinson 1987). Thus, familiarity might substantially improve consumer efficiency. When consumers decide which channel to choose, experience effects might thus be more prevalent than spillover effects because of the higher potential to improve their efficiency. We thus formulate the following proposition:

P4: Channel spillover effects are less important for consumers' channel choices than experience effects.

2.4 Stage–channel and product–channel associations

Consumers might associate a certain stage of the buying process with a particular channel, such as when consumers consider a brick-and-mortar store as better suited for purchasing a product (Verhoef et al. 2007). Such stage–channel associations might affect channel utility and the likelihood of choosing a channel to accomplish a specific task, independent of channel attributes, experience, and spillover effects. Moreover, a given product might be more closely associated with one channel than others if the product and channel attributes match (Inman et al. 2004). Such product–channel associations might also affect consumers' channel choices, independent of channel attributes, experience, and spillover effects. We thus need to control for stage–channel and product–channel effects when modeling consumers' channel choices.

3 Methodology

3.1 Data collection and sample

Syndicated market research was conducted among 500 randomly selected German banking customers from a consumer panel.[1] We chose the retail banking industry because of its long history of multichannel service retailing, which suggests that banking customers should have a reasonable degree of familiarity with multiple channels. However, our model is not restricted to the financial services industry.

Our approach requires survey data because we are interested in consumers' channel choices across all stages of the buying process and their perceptions of channel attributes. Such information typically is not stored in customer databases

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[1] We hired a professional market research agency to collect the data to ensure a representative sample. The agency randomly selected 500 consumers out of their panel and approached them to participate in our study. All approached consumers agreed to participate in our study.

(for a similar approach, see Rust et al. 2004). The respondents initially were contacted to make individual appointments at their homes. Face-to-face interviews seemed preferable, considering the sensitivity of the topic (financial services) and the complexity of the questionnaire. Only consumers who actively managed their financial affairs and were between 18 and 70 years of age were included. We had to delete four respondents because of invalid answers.

In the sample, the respondents on average maintained relationships with 1.6 banks and used 3.2 banking products. The income and educational level distributions in the sample were representative for the German population. The average age was 39.6 years and 51.8 % of the respondents were women.

3.2 Measurement of dependent variable

The dependent variable refers to the consumer's likelihood of choosing a channel in a specific usage situation. In total, we consider six different usage situations that vary according to the three stages of the buying process—search, purchase, and after-sales—and the product being considered—checking and brokerage accounts. These products ensure a reasonable degree of familiarity, considering their widespread market penetration. We further consider four different channels commonly used in retail banking: branch, Internet, call center, and self-service terminal.

The survey asked respondents to state the likelihood they would choose a certain channel in a specific situation. For example, respondents were asked to state how likely they are to use the branch (Internet, call center, self-service terminal) to gather information about checking accounts. We employ a choice probability scale, ranging from 0 to 100, which offers great precision (Wright and McRae 2007). Moreover, we can account for consumers using a set of channels in each stage to maximize their utility and their proneness to choose one channel over another. A none-option was not included because we assume every respondent can state his or her intention to use a certain channel for search, purchase, and after-sales services.

3.3 Measurement of independent variables

Adapted scales provided the measures for the following channel attributes: quality (Strebel et al. 2004; Verhoef et al. 2007), convenience (Devaraj et al. 2002; Frambach et al. 2007), risk (Rugimbana and Iversen 1994; Sweeney et al. 1999), and price (Mathwick et al. 2001; Sweeney et al. 1999).

All items used to measure the channel attributes are evaluated on five-point scales ranging from 1 (absolutely disagree) to 5 (absolutely agree). We measured the channel attributes for every channel and stage of the buying process. For example, we specifically measured consumers' perception of the Internet channel's convenience in the search stage (purchase and after-sales stage, respectively).

Perceived price is not included in the search stage because information is not priced in the German financial services market. In a large-scale pretest with 434 students, we further noted that in the after-sales stage, consumers did not distinguish between perceived quality and perceived risk. We therefore only consider perceived risk in the after-sales stage to avoid multicollinearity. Finally, we ran an exploratory

factor analysis to check whether the items are grouped together as expected and they did.[2] In our model, each channel attribute measure represents the average score of the specific items.

To operationalize experience effects, we asked respondents to name the channel they had used predominantly on the previous occasion, according to the stage of the buying process and the product. At this point, we included a none-option in case respondents have never searched for information about, purchased, or used after-sales services for a specific product before. If respondents chose the none-option for previous channel use, we excluded their observations from the model estimation; otherwise, we could not model experience effects accurately. This approach leaves us with 1,889 observations.

3.4 Model

We assume that consumers choose the set of channels that maximizes their utility in each stage of the buying process. Although our utility specification is consistent with a cost–benefit approach, we do not explicitly incorporate the costs of using a channel in our model. Rather, we implicitly account for channel usage costs and other channel attributes with specific constants (Strebel et al. 2004). Channel utility is thus expressed by:

$$U_{c,i,p,s} = \alpha_c + \eta_{c,p} + v_{c,s} + \sum_{a \in A} \beta_{a,s} \cdot attribute_{a,i,c,s} + \phi_s \cdot previous\_use_{c,i,p,s}$$

$$+ \sum_{s' \in S} \delta_{s',s} \cdot like_{c,i,p,s'} \tag{1}$$

$$\forall c \in C, i \in I, p \in P, s \in S, s' \neq s$$

where

$U_{c,i,p,s}$:	Utility of channel c for consumer i for product p in stage s
α_c:	Constant for channel c
$\eta_{c,p}$:	Constant for channel c and product p
$v_{c,s}$:	Constant for channel c and stage s
$\beta_{a,s}$:	Parameter of channel attribute a in stage s
$attribute_{a,i,c,s}$:	Consumer i's perception of channel c along channel attribute a in stage s
ϕ_s:	Parameter of channel experience within stage s
$previous\_use_{c,i,p,s}$:	Variable indicating whether consumer i has chosen channel c for product p in stage s previously
$\delta_{s',s}$:	Parameter of channel spillover from stage s' to stage s
$like_{c,i,p,s'}$:	Consumer i's likelihood to choose channel c for product p in stage s'

To model channel experience, we include an indicator variable that is equal to 1 if channel c has been chosen previously in the same stage of the buying process and for

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[2] The results are available from the first author on request.

the same product. We thus consider experience effects context specific.[3] To model spillover effects, we consider a consumer's stated probability of choosing channel c for product p in stage s' (like$_{c,i,p,s'}$) when explaining that consumer's utility of channel c for product p in stage s. For example, a consumer's stated probability of choosing the Internet channel for search influences the utility of the Internet channel in the purchase stage (and vice versa)—given a specific product.

Channel utility is unobserved, but we observe consumers' stated channel choice probabilities. We use the observed channel choice probabilities as replication weights in a multinomial logit (MNL) model formulation (Vermunt and Magidson 2005). This approach is consistent with random utility theory and employing a MNL model with replication weights has several advantages. First, compared with a multinomial probit model, this approach enables us to exploit the information of the probability scale fully (i.e., values range between 0 and 100). Second, we can easily handle the zeroes that occur when consumers do not intend to use a specific channel, which we could not do if we used an attraction model. The probability density associated with the responses of consumer i therefore takes the form:

$$\text{Prob}(y_i) = \prod_{s \in S} \prod_{p \in P} \prod_{c \in C} \left[\frac{\exp(U_{c,i,p,s})}{\sum_{c' \in C} \exp(U_{c',i,p,s})} \right]^{v_{c,i,p,s}} \quad \forall i \in I, \tag{2}$$

$v_{c,i,p,s}$:   stated choice probability channel c for consumer i and product p in stage s

4 Empirical results

4.1 Main results

We estimated four different models. Models 1 to 3 only consider one determinant (i.e., channel attributes, experience, or spillover) of consumers' channel choices, while model 4 (full model) includes all determinants.[4] In Table 1, we provide the estimated parameters of the four different models and the relative importances for the full model. We first discuss the results of the full model.

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[3] One might argue that channel experience related to one product might influence channel utility for another product. We tested whether such cross-product experience effects exist and find no significant effects. Moreover, one might argue that experience with a channel for a certain buying stage might influence consumers' channel choice intention for that channel in other buying stages. We therefore also examined whether such cross-stage experience effects affect consumers' channel choice intentions. We find that only two out of six cross-stage experience effects are significant (search→purchase, purchase→search), and thus conclude that neither cross-product nor cross-stage channel experiences are critical for consumers' channel choices.

[4] We estimated a single, comprehensive model using all observations and noting multiple observations from each subject. Moreover, we also have run several latent class MNL models to investigate whether consumers differ in their reaction to channel attributes, experience, and spillover effects. We find that the aggregate model results in the lowest BIC and thus conclude that consumers do not significantly differ in their reaction to channel attributes, experience, and spillover effects.

Table 1 Effects of channel attributes, experience, and spillover effects on consumers' channel choices (*p*-value in brackets)

| | Estimated effects | | | | Relative importance (%) |
	Model 1	Model 2	Model 3	Model 4	(Model 4)
Attributes					
Search					
Convenience	**0.20 (0.01)**			0.08 (0.34)	2.3
Quality	**0.59 (0.00)**			**0.30 (0.00)**	8.3
Risk	−0.08 (0.32)			−0.02 (0.79)	0.6
Purchase					
Convenience	**0.45 (0.00)**			**0.24 (0.02)**	6.8
Quality	**0.52 (0.00)**			**0.44 (0.00)**	12.3
Risk	**−0.23 (0.03)**			−0.15 (0.16)	4.2
Price	−0.07 (0.41)			0.00 (0.99)	0.0
After-sales					
Convenience	**0.81 (0.00)**			**0.47 (0.00)**	13.1
Risk	**−0.33 (0.00)**			**−0.21 (0.01)**	6.0
Price	−0.10 (0.13)			−0.04 (0.55)	1.2
Experience					
Search		**1.60 (0.00)**		**1.14 (0.00)**	8.0
Purchase		**1.51 (0.00)**		**0.87 (0.00)**	6.1
After-sales		**1.88 (0.00)**		**1.29 (0.00)**	9.0
Spillover					
Search→purchase			**1.34 (0.00)**	**0.85 (0.00)**	5.9
Search→after-sales			**1.48 (0.00)**	**0.40 (0.03)**	2.8
Purchase→search			**1.24 (0.00)**	**0.74 (0.00)**	5.2
Purchase→after-sales			**1.13 (0.00)**	0.48 (0.05)	3.3
After-sales→search			**1.28 (0.00)**	**0.48 (0.00)**	3.4
After-sales→purchase			**0.91 (0.00)**	0.22 (0.33)	1.5

Number of observations=1,889. Bold values are significant at 5 % level. The relative importance weights add up to 1 across all estimated effects

Perceived convenience does not influence consumers' channel choices in the search stage (*p*=0.34), but it significantly affects consumers' channel choices in the purchase (*p*=0.02) and after-sales (*p*=0.00) stage. Its relative importance in the purchase and after-sales stage is 6.8 % and 13.1 %, respectively. Convenience is thus most important in the after-sales stage. Perceived quality positively affects consumers' channel choices in the search (*p*=0.00) and purchase (*p*=0.00) stage.[5] It is more important in the purchase than in the search stage (importance 12.3 % and 8.3 %, respectively). Perceived price does not significantly affect consumers' channel choice

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[5] A pre-test showed that perceived quality and risk are highly correlated in the after-sales stage. To avoid multicollinearity, we only consider perceived risk in the after-sales stage.

decisions in the purchase and after-sales stage ($p=0.99$ and $p=0.55$, respectively). Its importance for consumers' channel choices is thus relatively low. Perceived risk significantly affects consumers' channel choices in the after-sales stage ($p=0.01$) only and has a relative importance of 6.0 %.

Overall, the results support the notion that the relative importance of channel attributes differs across the stages of the buying process. In the search and purchase stage, quality is the most important channel attribute. In the after-sales stage, convenience is the most important attribute (Table 1). It is further interesting to note that perceived price plays no significant role in consumers' channel choices. We expected that price is important for consumers' channel choices in the purchase stage. However, we find that a channel's quality and convenience are more important in that stage.

All experience parameters are positive and significant. Channel experience is relatively more important in the after-sales (9.0 %) than in the search (8.0 %) and purchase (6.1 %) stage. However, the experience effects are in every stage less important than the most important channel attribute in each stage of the buying process, not supporting P1. In our setting, the after-sales stage is the most recurring stage of the buying process because consumers use their checking and brokerage accounts frequently to transfer money or to buy/sell stocks. Hence, the results support P2.

The spillover parameters are positive and four out of six parameters are significant (only purchase↔after-sales are not significant). The strongest spillover effects occur from search to purchase and vice versa (5.9 % and 5.2 %, respectively). This result supports P3 because these two stages often coincide. Consumers search for information to finally buy a product, while the usage of the products occurs with some temporal delay. The results further support P4; all spillover effects are less important for consumers' channel choices than channel experiences.

4.2 Model performance and comparison of models

We did a split-half analysis to provide more confidence that our results hold up across different samples. We use the correlation between the relative importance of channel attributes, experience, and spillover effects as a performance measure. The correlation is 0.80 which can be considered as high. We further repeated the analysis using 10 % of the sample as a holdout and then computing the mean squared error (MSE) using observed and predicted choice probabilities. The MSE is 0.144, and a more detailed investigation reveals that MSE is driven by a few outliers. The model predicts a high probability of choosing the branch for a few subjects, even though these subjects chose the Internet with a probability of (close) to 100 %. The median for the squared error is 0.076, suggesting that the model performs well in predicting consumers' channel choices.

One of the most important contributions to literature is that we simultaneously investigate the effects of channel attributes, experience, and spillover on channel choice. Our results in Table 1 clearly show that more parameters are significant when investigating the impact of only one of these three determinants. Search convenience is significant in model 1, but it is insignificant in model 4. Purchase risk is significant in model 1 but not in model 4. In model 3, all spillover effects are significant; while in

model 4 only four out of six parameters are significant. Moreover, the relevance of the spillover effects differs in the two models. For example, the search-purchase spillover effect is the most important spillover effect in model 4 while the search-after-sales spillover effect is the most important one in model 3. In general, these results clearly show that studies only investigating a subset of determinants might overrate the relevance of some effects.[6] Furthermore, the results show that channel attributes, experience, and spillover effects matter.

In our prior analyses, we estimated a pooled model across two products (checking and brokerage account). One could argue that the effects might differ between the two products because each of these products has distinct features in terms of, for example, usage frequency, involvement, and complexity.[7] We therefore also estimated two separate models for each product. Table 2 reports the results for the two full models. We find fewer significant parameters. Remarkably, we find that a channel's search and purchase quality significantly affects consumers' channel choice for checking accounts, while it does not significantly influence channel choice for brokerage accounts. Moreover, after-sales risk is only significant for checking accounts but not for brokerage accounts. With regard to experience effects, experience with a channel in the purchase stage does not influence consumers' channel choice in that stage. Interestingly, the spillover effect "purchase-after sales" is significant for brokerage accounts. Overall, these results suggest that the effects of channel choice determinants might differ between products.

5 Discussion

5.1 Conclusions

Building on prior literature, we have developed a model that explains consumers' channel choices in the different stages of the buying process in a retail banking setting. In our model, we account for how channel experience and spillover effects affect consumers' channel choices over and above channel attributes. Importantly, our study shows that an integrative approach is important as channel attributes, experience, and spillover effects matter. This is an important finding, as prior research did not include all determinants simultaneously (e.g., Dholakia et al. 2005; Frambach et al. 2007; Thomas and Sullivan 2005; Verhoef et al. 2007). We recommend researchers studying channel choice to include channel attributes, experience, and spillover effects in their channel choice models. Not including all drivers of consumers' channel choices might lead to incorrect implications. For example, just focusing on channel attributes would lead to the conclusion that a channel's convenience is an important driver of consumers' channel choices in the search and purchase stage. However, when considering experience and spillover effects, we find that convenience plays no significant role for consumers' channel choices in the search stage and also its relevance in the purchase stage is less pronounced.

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[6] One might argue that these results are driven by high correlations between the independent variables. We have calculated these correlations, which are all below 0.45 suggesting no strong multicollinearity.

[7] We thank an anonymous reviewer for suggesting this additional exploratory analysis.

Table 2 Product-specific models: effects of channel attributes, experience, and spillover effects on consumers' channel choices

	Estimated effects	
	Checking account	Brokerage account
Attributes		
Search		
Convenience	0.08	0.25
Quality	**0.33**	0.10
Risk	0.00	−0.11
Purchase		
Convenience	0.22	0.28
Quality	**0.47**	0.21
Risk	−0.13	−0.21
Price	0.02	−0.02
After-sales		
Convenience	**0.52**	**0.34**
Risk	**−0.21**	−0.23
Price	−0.08	0.02
Experience		
Search	**1.24**	**0.75**
Purchase	**0.96**	0.44
After-sales	**1.29**	**1.12**
Spillover		
Search→purchase	**0.85**	**0.92**
Search→after-sales	0.38	0.46
Purchase→search	**0.78**	0.76
Purchase→after-sales	0.30	**1.09**
After-sales→search	**0.42**	0.48
After-sales→purchase	0.22	0.76
Number of observations	1,487	402

Bold values are significant at 5 % level

Substantively, we show that channel experience effects exist and explain a significant part of consumers' channel choices (Table 1). Ignoring experience effects biases the results with respect to channel attributes, that is, more effects are significant when experience effects are not taken into account.

Spillover effects also explain some portion of consumers' channel choices but are less important than experience effects. We use the stated likelihood of choosing a channel in the different stages to model spillover effects. This operationalization could cause halo effects that increase the relevance of spillover effects. This possibility makes it even more remarkable that the spillover effects are relatively less

important for consumers' channel choices in our study. Our findings also indicate that spillover effects from closely related stages are most relevant.

Overall, our more integrative approach provides a more complete picture of consumers' channel choices. We show that ignoring one of the drivers of consumers' channel choices biases the results, that is, the importance of some factors seems to be overestimated. Our study also contributes to the channel choice literature by studying search, purchase, and after-sales simultaneously. We show that the importances of channel attributes, experience, and spillover effects vary across stages of the buying process. For example, convenience is important in the purchase and after-sales stage, while it is not important in the search stage. Perceived risk is only relevant in the after-sales stage. We observe the strongest experience effect in the after-sales stage, which probably arises because after-sales is the most frequently recurring stage in the studied product categories. The strongest spillover effects exist between the search and purchase stage—probably because these two stages are closely linked and often coincide.

Note that our context of retail banking is rather special. The specific results are thus more exploratory given the limited and maybe less generalizable context in which the empirical research is conducted. But it is noteworthy that our results confirm prior findings that indicate convenience and quality as important drivers of consumers' channel choices (Verhoef et al. 2007). Moreover, our result, that price does not drive channel choice, also matches prior findings that considered different product categories (e.g., Verhoef et al. 2007).

5.2 Managerial implications

Many retailers and service providers want to motivate their customers to also use the Internet channel, which is less expensive and creates multichannel consumers, who tend to be more profitable (Venkatesan et al. 2007). However, the effects of improved channel attributes on consumers' channel choices might be rather limited because of substantial experience effects. Managers could easily overestimate these effects if they fail to take experience effects into account. In turn, strategies to steer consumers to the Internet must include a consideration of ways to overcome experience effects, such as by increasing consumers' self-competence or overall sense of themselves as capable, effective, and in control (Meuter et al. 2005).

We further find that the largest spillover effects occur from search to purchase and vice versa since these two stages are closely linked, that is, they often coincide. Changing consumers' perceptions of the Internet channel by improving its attributes in the search stage and thus increasing the use of the Internet channel for search might also increase the likelihood that consumers finally use the Internet to purchase a product.

5.3 Limitations and further research

As these implications reveal, we believe that our findings improve our understanding of consumers' channel choices; however, this research also is subject to several limitations that provide avenues for further research. We take a more integrative approach toward channel choice than previous research—considering all stages of the buying process, channel attributes, experience, and spillover effects as well as four different channels. Because of the complexity of such an approach, the study is

limited to a single industry context (retail banking) and on two different products (checking and brokerage accounts). Thus, our findings might not be generalizable beyond the context and products in our study. Future research might replicate the study considering a different context and products to examine whether the results hold in other contexts and for other products.

In an exploratory analysis, we investigated differences between the two studied financial products (Table 2). We find some differences between the two products, which can be attributed to different product category characteristics. At this point, it is difficult to theoretically explain these differences. Product category characteristics that might explain these differences concern, for example, product complexity, product involvement, and usage frequency. Further research might want to study the moderating effect of product category characteristics.

We used channel choice intentions rather than actual choice behavior to estimate the channel choice model. We applied a proven and well-accepted method to measure these intentions (Rust et al. 2004), but the link between intention and behavior could be relatively weak and subject to halo effects. The best option would be to study a retailer or service provider with an integrated database about actual channel choice behavior, which would provide a single view of consumers across channels. But data pertaining to actual channel choice behavior at the individual level in the search stage are hardly available. Obtaining a data set that describes actual channel choice behavior across all stages of the buying process is thus very challenging. Moreover, our focus is not just on predicting future channel choice but also on understanding consumers' channel choice behavior. Previous studies with a similar aim also use channel choice intentions (Verhoef et al. 2007). Additional research could consider actual channel choice behavior or a combination of survey and transaction data.

We asked respondents only about the channel they chose predominately on the previous occasion. Further research could include a more comprehensive measure of consumers' channel experiences in a specific context to explain potential differences in the magnitude of experience effects. Further research could use longitudinal data to gain more detailed insights into consumers' channel choice behavior over time.

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