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Li, J.; Konuş, U.; Langerak, F.; Weggeman, M.C.D.P.

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Customer Channel Migration and Firm Choice: The Effects of Cross-Channel Competition

Jing Li, Umut Konuş, Fred Langerak, and Mathieu C.D.P. Weggeman

ABSTRACT: Customers switch among multiple channels offered by multiple firms and this means that multichannel shopping behavior also depends on the channels offered by competitors. To what extent do competitors' channel offerings influence the use of a new online channel introduced by a firm? This important issue remains largely untapped by marketers and managers since it requires not only multichannel but also integrated multifirm data. This study investigates the impact of customers' past and current purchases from competitors' channels on channel choice with a focal firm that introduces a new online purchase channel. Furthermore, we examine the effect of new online channel adoption on customer purchases (firm choice and order size) from the focal firm and its competitors. The data contain eight-year individual transactions from ten competitive multichannel home decoration retailers. Our research reveals that customers' previous purchases from competitors' online channels increase the probability of online channel adoption from a focal firm that introduces its online channel later than its competitors. This effect is greater for existing customers than new customers who are acquired after the introduction of the new online channel. Customer adoption and use of this new online channel reduce purchase frequencies of competitors, but increase purchase frequencies of the focal firm, for both existing and new customers. Together these findings illustrate the role of competitors' channels in determining customers' channel choice of the focal firm. Retailers therefore should consider the effects of competitors' channel offerings and tailor their channel strategies to accommodate the various needs of new and existing customers, when they plan to introduce a new online channel.

KEY WORDS AND PHRASES: Channel migration, cross-channel competition, multichannel retailing, online channel adoption, online channels.

The Internet has become a mainstream purchase channel. The online retail sales in the United States occupied 9 percent of the \$3.2 trillion total retail market in 2013 and will continue to grow at an annual rate of nearly 10 percent through 2018 [22]. European online retail sales will grow at a rate of 12 percent per year by 2018 [21]. Therefore, integrating the offline purchase channel with the online platform has become a key issue for most firms [39]. However, there are still offline retailers that have neither adopted nor planned to introduce an online purchase channel. In the multichannel environment, customers can shop from multiple channels offered by firms competing in the same industry. Prior to a late entrant introducing its own online channel,¹ customers might already have had online shopping experience from competitors' online channels as well as

¹ An entrant in our research refers to an incumbent firm introducing a new (online) channel.

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offline shopping experiences from competitors. As presented in [Figure 1](#), these experiences with competitors' online and offline channels could influence overall customer channel preference and thus affect the migration to the online channel introduced by the late entrant. In spite of first-mover advantages established by early entrants, prior research posits that late entrants may still free ride on early movers by benefiting from the resolution of technological or market uncertainties [41, 64]. However, it is still uncertain whether the late entrant in the online market can benefit from or be hindered by customers' previous use of competitors' online channels. Furthermore, customers may simultaneously switch firms when they switch channels [69]. In this sense, a new online channel creates cross-channel competition in the online channel context it shares with competitors as well as with other offline channels used by competitors.

In such an environment firms must understand the effects of cross-channel offerings and competition on customer channel migration and channel choice in general. Research in practice shows that multichannel shoppers constitute over 80 percent of the consumer market [58] and spend approximately three or four times more than single-channel customers [62]. Empirical evidence also suggests that multichannel customers normally buy substantially more and are more valuable than single-channel users [25, 37, 79]. Managers thus need to have clear knowledge about how customers choose and migrate among multiple channels, especially in a competitive multi-retailer setting.

Existing literature indicates that prior channel usage greatly affects subsequent channel choice and migration [5, 35, 49, 68], and customer shopping behavior depends on competitors' actions [3, 44, 47, 70]. However, existing studies have not distinguished between the prior channel usage with the focal firm (i.e., the late entrant) that introduces a new channel and its competitors. The prior channel usage in previous studies either refers to the previous usage experiences with the focal firm or a general view of channel usage that customers could obtain from their shopping experiences in other categories. As emphasized by Neslin and Shankar [50], it is still unknown whether customers perceive the same channel differently from the focal firm in comparison to competitors. Therefore, it is necessary to investigate the effects of customers' previous channel usage from competitors on customer channel migration.

Furthermore, it is necessary to distinguish between a firm's existing customers who were acquired *before* the introduction of the new online channel, and the new customers who are acquired by the focal firm *after* introducing an online channel. Channel preferences and reactions toward a new online channel could be different between these two groups of customers. For example, Valentini, Montaguti, and Neslin [68] demonstrate that certain existing customers are less responsive to marketing and are less likely to switch channels than newly acquired customers. Avery et al. [7] differentiate between first-time and repeat customers, and suggest that the effects of a brick-and-mortar store on the sales of direct channels differs between the two customer groups. However, it is not clear whether cross-channel competition differently affects new channel adoption and channel choice of the above customer groups. In response, we investigate the effects of cross-channel competition on customer

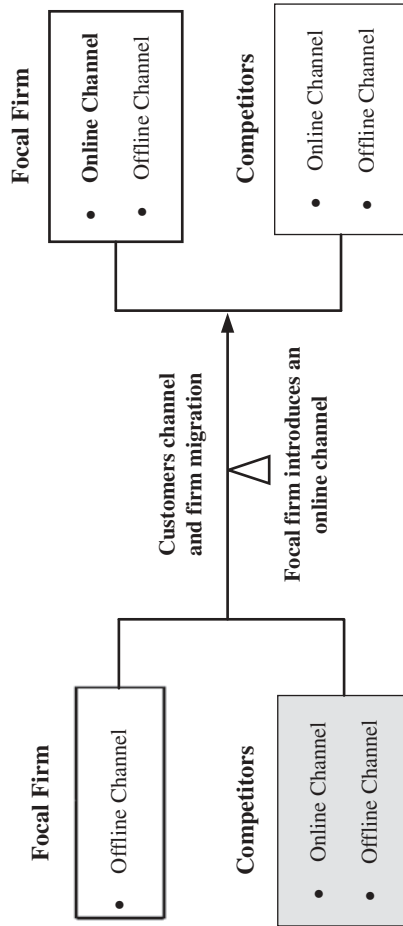


Figure 1. Customer Channel and Firm Migration in a Competitive Environment

migration to a new online channel of a focal firm and distinguish between the firm's existing and new customers on the basis of their time of acquisition by the focal firm.

The increasing competitiveness of the multichannel environment also makes it vital to investigate the consequences of customer adoption of a new channel, especially the effects on competition among firms. Many studies argue that firms benefit from introducing online channels, through more revenues [25, 40, 79], increased customer retention [10, 14], or greater customer loyalty [65, 75]. Other studies instead indicate that online channel adoption increases average service costs [14], while diminishing customer purchase frequency [5, 71]. In this debate, we find no indication of how customers' adoption of a new online channel affects their firm choice and competitors' order size. Yet a clear understanding of the effects of competition in multichannel marketing should provide a more accurate assessment of the value of new channel introduction [17, 50].

Against this background we investigate customer channel migration and firm purchases in a multichannel and multifirm environment by examining two research questions:

1. *Do customers' previous purchases from competitors' online and offline channels affect customer migration to the new online channel of a focal firm's existing and new customers, and how?*
2. *How does customers' adoption and use of a new online channel affect their purchases from competitors and from the focal firm (e.g., firm choice and firm order size)?*

To answer these questions, we model customer shopping behavior in the multichannel competitive environment according to firm choice (purchase incidence with the focal firm and its competitors), channel choice, and firm order size. Although prior research reveals that customers progress through several phases during the shopping process, such as information search, purchase, and after-sales services [48, 74], we focus on the shopping behavior based on transactions during the purchase phase. In doing so, we construct a model based on a unique multichannel purchase data set gathered from ten retailers competing in the same category (home decoration). Each customer has a unique identity that is identical across all retailers, so we can track customer purchases from all firms in this category over time. The customer transaction data span forty-two months before and fifty-four months after a focal firm introduced a new online channel. We recognize the focal firm as a late online-channel entrant because six retailers in this category have already established online purchase channels, and the first online entry happened seven years prior to the online channel launch of the focal firm. All retailers operate direct purchase channels (Internet, catalog, and telephone). Therefore, this research does not consider the effects of brick-and-mortar stores. So offline channels in this research refer to the catalog and telephone channels.

Literature Review

Effects of Customers' Previous Use of Competitor's Purchase Channels on Current and Future Channel Choice from a Retailer

Based on a review of existing literature, Blattberg, Kim, and Neslin [9] and Neslin et al. [48] classify the drivers of customer channel choice into individual differences, channel attributes, marketing, social influence, channel integration, and situational factors. Drawing on this classification, we summarize the relevant studies in Table 1 that were published after 2006 and those not contained in these classifications. Our summary shows that although many studies contribute to the marketing channel research domain, no study has yet investigated the effect of customers' prior use of competitors' channels on customer channel choice.

Table 1. Summary of the Literature on the Antecedents of Channel Choice (Since 2006).

Determinants	Variable	References
Marketing	E-mail	Konuş, Neslin, and Verhoef [35]; Valentini, Montaguti, and Neslin [68]
	Catalog	Valentini, Montaguti, and Neslin [68]
	Content of marketing message	Montaguti, Neslin, and Valentini [45]
Channel attributes	Ease of use	Frambach, Roest, and Krishnan [23]; Gensler, Verhoef, and Böhm [26]
	Accessibility	Frambach, Roest, and Krishnan [23]
	Convenience	Frambach, Roest, and Krishnan [23]
	Transaction cost	Chintagunta, Chu, and Cebollada [15]
	Risk	Falk et al. [20]; Gensler, Verhoef, and Böhm [26]
	Price	Gensler, Verhoef, and Böhm [26]
	Channel quality	Gensler, Verhoef, and Böhm [26]
	Social influence	Social presence
Channel integration	Offline channel impression (e.g., satisfaction and image)	Falk et al. [20]; Verhagen and Van Dolen [72]
	Shopping process	Frambach, Roest, and Krishnan [23]; Gensler, Verhoef, and Böhm [26]
Situational factors	Physical setting (e.g., weather)	Chintagunta, Chu, and Cebollada [15]
	Temporal issues (e.g., weekend)	Chintagunta, Chu, and Cebollada [15]
Individual differences	Previous channel experience (e.g., inertia)	Falk et al. [20]; Frambach, Roest, and Krishnan [23]; Gensler, Verhoef, and Böhm [26]; Konuş, Neslin, and Verhoef [35]; Neslin et al. [49]; Valentini, Montaguti, and Neslin [68]
	Demographics (e.g., age, gender, and income)	Chintagunta, Chu, and Cebollada [15]; Falk et al. [20]; Konuş, Verhoef, and Neslin [36]; Konuş, Neslin, and Verhoef [35]
	Psychographics (e.g., innovativeness, loyalty, and psychosocial feeling)	Frambach, Roest, and Krishnan [23]; Hahn and Kim [30]; Konuş, Verhoef, and Neslin [36]

Drawing on the prior classifications as well as the studies in Table 1, we identify two important factors that could potentially impact customer channel choice when switching from competitors' channels to the channels of the focal firm. These factors pertain to customer learning and switching costs.

Learning has a profound influence on customer channel choice. Customers learn from their previous experiences with firms and channels and these experiences impact their subsequent channel decisions such as channel choice and migration [5, 49, 61]. Previous research also reveals that the learning process evolves over time, moving from a deliberative mindset to an implemental mindset [1, 28, 68]. Through this learning over time, customers' previous shopping experiences with competitors' channels could shape up their overall channel preference and affect their channel choices with the focal firm.

Switching costs refer to "the onetime costs that customers associate with the process of switching from one provider to another" [13, p. 110]. Therefore, it influences customers' decisions when they switch among different firms or channels [3, 15, 18]. Switching cost is related to learning effects, as it consists of both learning cost and transaction cost [3]. The learning cost refers to the time and effort customers spend in learning how to use a new product or service [3]. The transaction cost is associated with the cost incurred while accomplishing a transaction (e.g., the cost of opportunity time, transportation, search, and adjustment) [15]. Online customers can more easily switch among firms because they have instant access to the websites of different firms. Thus customers incur lower switching costs (e.g., search and travel cost) in changing providers [15, 42].

Effects of Online Channel Adoption and Introduction on Firm Performance

Many studies investigate the consequences of customer adoption of online channel and online channel introduction. Table 2 summarizes the literature that investigates the effect of online channel on the performance of offline channels, the performance of the focal firm introducing the online channel, and the performance of competitors.

An online channel introduction can improve the performance of the focal firm through changes in the revenues and costs related to serving customers. First, online channels contribute to profitability by increasing customer revenues. Customers who use the online channel perceive more information control [6] and enjoy greater convenience and accessibility [11, 46]. Therefore, online usage is associated with higher customer revenue and retention [10, 14, 25, 40, 79]. Second, an online channel increases customer profitability by reducing the costs required to serve customers. For example, Gensler, Leeftang, and Skiera [25] show that operating online banking decreases the costs of serving customers. Third, an online channel can support and complement other channels of the same firm. Therefore, the overall performance of a multichannel system is greater than the sum of the performance of each individual channel [38, 49].

Table 2. Summary of the Literature on the Consequences of Online Channel Adoption and Introduction.

Studies	Effects of online channel adoption/introduction	Type of online channel	Industry	Key findings
Biyalogorsky and Naik [8]	Offline channel performance	Online transactional channel	Music	Sales of online channels do not significantly cannibalize the sales of offline channels.
Deleersnyder et al. [16]	Offline channel performance	Online transactional channel	Newspaper	Online channel introduction in most cases does not cannibalize the circulation and advertising revenue of established channels in the long run.
Pauwels et al. [55]	Offline channel performance	Online informational channel	Retailing (electronics, clothing, cosmetics, furniture, etc.)	The offline revenue impact of the informational website varies greatly across product categories and customer segments.
Van Nierop et al. [71]	Offline channel performance	Online informational channel	Retailing (clothing, sport and furniture)	For most customers, the introduction and use of online information channels reduce the number of shopping trips and the amount of money they spend. Online channels substitute the sales of catalog more than store sales.
Ward [76]	Offline channel performance	Online transactional channel	Retailing, legal service, travel, and so on	Online channels substitute the sales of catalog more than store sales.
Ansari, Mela, and Neslin [5]	Overall firm performance	Online transactional channel	Retailing (consumer durable and apparel products)	Online purchase is negatively associated with subsequent purchase volumes.
Boehm [10]	Overall firm performance	Online transactional channel	Banking	Online use has a positive effect on customer retention.
Campbell and Frei [14]	Overall firm performance	Online transactional channel	Banking	The adoption of online channel increases total transaction volume, thus reduces short-term profitability. But it enhances customer retention rates in the long run.
Geyskens, Gielens, and Dekimpe [27]	Overall firm performance	Online transactional channel	Newspaper	Online channel introduction has a positive effect on a firm's stock price.
Lee and Grewal [38]	Overall firm performance	Online informational channel	Retailing (consumer durable, food, and apparel products)	The adoption of online transactional channel has a positive effect on firm performance.

(continues)

Table 2. Continued

Studies	Effects of online channel adoption/introduction	Type of online channel	Industry	Key findings
Li et al. [40]	Overall firm performance	Online transactional channel	Natural and beauty products	Online channel adoption positively increases the purchase amount of light shopper segments, but has no effect on the purchases of heavy shopper segments.
Gensler, Leeflang, and Skiera [25]	Overall firm performance	Online transactional channel	Banking	Online use increases customer revenue and decreases cost to serve, but this effect varies based on product portfolio.
Xue, Hitt, and Chen. [79]	Overall firm performance	Online transactional channel	Banking	Online channel adoption positively impacts banking activity, transaction volume, customer retention, and product acquisition.
Brynjolfsson, Hu, and Smith. [12]	Performance of brick-and-mortar competitor	Online transactional channel	Clothing	Internet retailers face significant competition from brick-and-mortar retailers when selling mainstream products, but are almost immune from competition when selling niche products.
Moe and Yang [44]	Performance of online competitor	Online informational channel	Online bookstore	Inertia has an important influence on customer search behavior and is easily disrupted by a new competitive entry.
This study	Performances (firm choice and order size) of the focal firm and its multichannel competitors	Online transactional channel	Home decoration	

However, other studies argue that online introductions increase average service cost [14] and find (minimal) cannibalization between online and offline channels [56]. In addition, online channels can increase free-riding, which means online shoppers can easily switch firms if they switch from the Internet to other channels [69]. Finally, online channels can diminish customer profitability by allowing for lower purchase frequency [5, 71].

The overview in Table 2 reveals that only a few studies investigate the effects of online channel adoption and introduction on the performances of competitors. Brynjolfsson, Hu, and Rahman [12] reveal that online retailers face significant competition from brick-and-mortar retailers when they sell mainstream products, but they are nearly immune to competition when they sell niche products. Moe and Yang [44] investigate the impact of the entry of online search channels on online customer search of competitors. They find that inertia has a great influence on customer search behavior and is easily disrupted by a new competitive entry. These two studies focus on the competition among single-channel retailers. No study has yet investigated the entry of an online transactional channel on the performances of multichannel competitors, especially at the individual level. This study fills that gap in the extant literature by investigating the effects of customers' adoption and use of an online transactional channel on the individual purchases (firm choice and order size) achieved by both the focal firm and its competitors.

Conceptual Framework

Figure 2 shows the conceptual framework of this study. Following previous research on multichannel customer behavior [5, 71], we assume that for each purchase, customers decide whether to purchase from the focal firm or competitors (firm choice), then determine which channel to use (channel choice) and consequently how much money to spend (order size). To accommodate our main research focus, our framework emphasizes the effects of customers' previous purchases with competitors' channels on channel choice of the focal firm, and the influence of new online channel adoption on purchase volumes of competitors and the focal firm. Therefore, different from existing research that only considers customers' multichannel purchases with a single firm, our framework also contains customers' previous and current purchases with competitors' channels.

Because customers' current purchase volumes and channel choice depend on their previous purchase experiences [5, 35, 40], Figure 2 considers the effects of customers' previous multichannel purchases from the focal firm and its competitors. Following prior literature, we use customer channel preference together with state dependence to quantify customers' previous purchases [2, 35]. Customer channel preference refers to the customer's baseline percentage of purchases made through competitors' online channels prior to new online channel introduction by the focal firm [35]. State dependence represents the customer's behavior status in the last month or last purchase occasion [18, 68]. State dependence normally reflects the inertial tendency to repeat recent decisions (e.g.,

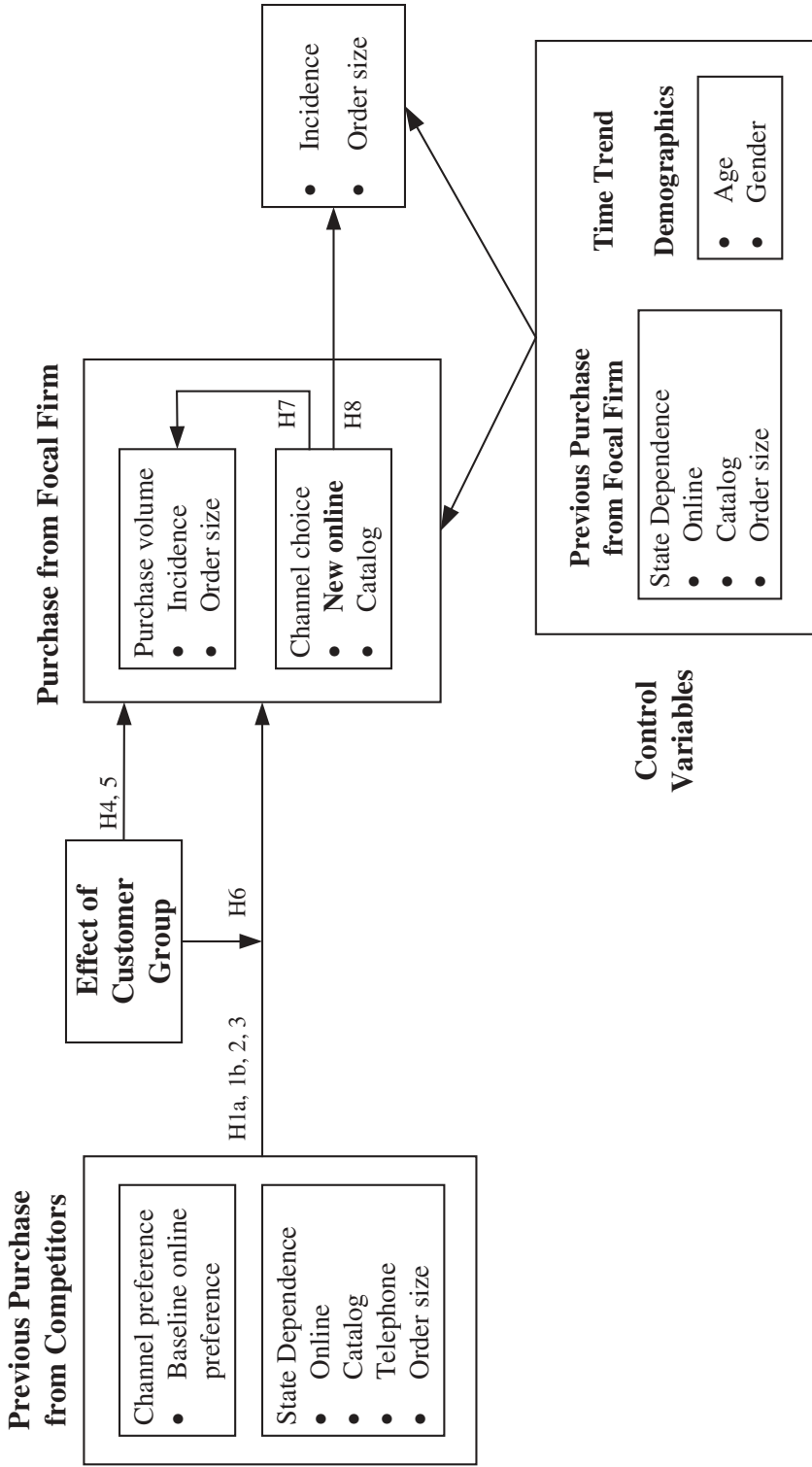


Figure 2. Conceptual Framework

channel choice or order size), but exerts a shorter-term effect if compared to the impact of channel preference [2, 35].

We let the type of customer group (new and existing customers of the focal firm) moderate the effect of online channel preference with competitors and control for the effects of customers' previous purchases from the focal firm. Finally, we control for time effect (time trend) because customer learning processes and shopping behavior evolve over time [5, 68] and demographics (including age and gender) that likely affect customer purchase incidence, channel choice, and order size [32, 65, 68].

Hypotheses

Following Figure 2 and using the theoretical concepts of learning from experience and switching cost we formulate our hypotheses. We begin by discussing the effects of previous purchases from competitors' channels (including online channel preference with competitors and state dependence with competitors) on customer channel choice from the focal firm after the introduction of a new online channel by the focal firm. Then, we explore the channel choice of existing and new customers, and the potential moderating effect of the customer group. Finally, we investigate the effects of online channel adoption and usage on customer purchases from the focal firm and from its competitors.

Effects of Cross-Channel Competition on Customer Channel Migration

Online channel preference with competitors. Existing research implies the coexistence of two different rationales pertaining to the effect of online channel preference with competitors on customer channel choice of the focal firm.

Previous studies explicate that customers learn from their previous purchases with multiple channels that constitute their overall channel preference [48, 68]. Customers with high online channel preference with competitors are likely to have more online shopping experiences relative to their total purchase occasions, and are therefore likely to have greater Internet and online shopping preference in general. Internet knowledge and previous online shopping experiences eliminate the perception of the risk of shopping online and enhance online purchase intention [5, 46, 51]. Thus, we expect the preference toward competitors' online channels to increase the chance of adopting the new online channel introduced by the focal firm in comparison to the chance of choosing the focal firm's catalog channel.

On the other hand, customers with high online channel preference with competitors may be less likely to purchase from the new online channel introduced by the focal firm. Customers with high online channel preference with competitors are likely to have more a positive attitude to competitors' online shopping channels. Therefore, they may have a higher expectation of subsequent online shopping experiences [77], including the expectation of

the new online channel introduced by the focal firm. Literature on customer decision making reveals that customers seek information and evaluate this information before their purchase decisions [48, 60], such that customers browse the information of product, payment, delivery, or return through a firm's website prior to purchase online. If the perceived quality (convenience) of these new online services is lower than customers' expectation, they are less likely to adopt and continuously purchase from the new online channel because of the likelihood of dissatisfaction [4, 52]. Such disconfirmation (the gap between customers' expectation and perceived quality) is also likely to happen from the supply side. The services and shopping supports of a newly introduced online channel may be insufficient compared to established online channels provided by competitors and the existing catalog channel offered by the focal firm. Therefore, customers with high online preference with competitors may be more likely to choose the well-established catalog channel when they purchase from the focal firm.

Given the opposing lines of argumentation presented above we cannot postulate which factor imposes the greatest influence. Therefore, we propose two opposing hypotheses corresponding to these two arguments:

Hypothesis 1a: *Customers who have high online channel preferences with competitors are more likely to choose the focal firm's newly introduced online channel than its existing catalog channel.*

Hypothesis 1b: *Customers who have high online channel preferences with competitors are more likely to choose the focal firm's existing catalog channel than its newly introduced online channel.*

Channel state dependence with competitors. Channel state dependence refers to customers' channel usage status on the last occasion. Switching cost is considered an important source of state dependence, which induces a form of inertia to past purchase status [3, 18]. Previous studies reveal that customers are prone to purchase again from the same channel through which they have purchased recently [5, 35, 44]. However, other studies argue that customers may seek variety on the subsequent occasion and thus are less likely to repeat the last behavior [2, 63]. Because more empirical evidence supports the positive feedback effect of channel state dependence, we expect customers are likely to continue to purchase through the same channel of the focal firm through which they purchased with competitors in the previous month. Accordingly, we offer two hypotheses, referring to competitors' online and catalog channels:

Hypothesis 2: *Customers who purchased from competitors' online channels on the last occasion are more likely to choose the focal firm's newly introduced online channel.*

Hypothesis 3: *Customers who purchased from competitors' catalog channels on the last occasion are more likely to choose the focal firm's existing catalog channel.*

Customer group (existing and new customers). Channel choice may differ between the focal firm's existing customers and the new customers who are acquired after the online channel introduction. Customer learning is a dynamic process, evolving from a deliberative mindset (cautious decision making) to an implemental mindset (automatically repeating previous behaviors) [1, 28, 78]. In line with this theory, Valentini, Montaguti, and Neslin [68] reveal that the channel decision process evolves over time. They find that a significant learner segment becomes driven more by channel preferences, and acquired customers become less responsive to marketing efforts over time. Compared with new customers, existing customers are more likely to establish their preferences for an existing catalog channel of the focal firm due to more interactions with this channel and long-term relationships with the focal firm. Therefore, they are likely to follow the preferences for the catalog channel and continuously purchase from this channel. Furthermore, as the catalog preference should be well-established before new online channel introduction, existing customers may be less likely to respond to online marketing communication that drives them to the online channel [5]. On the other hand, new customers who are acquired after the event are not likely to have established strong channel preferences for the focal firm. Therefore, they are more likely to use different channels of the focal firm and respond to the firm's online marketing. Accordingly, we posit:

Hypothesis 4: Existing customers of the focal firm are more likely to purchase through the existing catalog channel than new customers acquired after the introduction of the online channel by the focal firm.

Hypothesis 5: New customers of the focal firm are more likely to purchase through the new online channel than existing customers.

Moderating effect of customer group. We now turn to hypothesize the moderating effect of the above customer groups on the relationship between the online channel preference with competitors and channel choice. As we posited previously, existing customers are less likely to purchase from the new online channel than new customers because they have established strong preferences for the existing catalog channel whereas new customers have not. The online channel preference with competitors should lessen the catalog preference of existing customers and shifts their channel preferences from single-channel (catalog) preferences toward multichannel (including both online and catalog) preferences. Therefore, we hypothesize:

Hypothesis 6: Customers' online channel preferences with competitors has a greater effect on the adoption and use of the new online channel by existing customers than by new customers.

Effects of Online Channel Adoption on Purchases from the Focal Firm and from Competitors

Following previous research, we separate purchases into purchase incidence and order size—the amount of a single purchase [5, 56, 71]. As the new customers who are acquired by the focal firm's new online channel are inevitably more likely to switch their purchases to the focal firm, we hypothesize the effects of online channel adoption only for the existing customers of a focal firm.

By adopting and using the online channel, customers are likely to enjoy a lower search cost, higher shopping convenience, and greater information control and availability [6, 11, 42, 79]. Although some studies identify a negative relationship between online usage and purchase incidence [5, 71], more research evidence suggests that the adoption and use of an online channel should increase customer satisfaction and firm loyalty [65, 75], thus enhancing purchase incidence [14, 25, 56, 79]. Following previous research, we expect online channel adoption to increase purchase incidence of the focal firm for existing customers. Because customers often divide their purchases across several competing organizations [19], existing customers are likely to reduce their purchases with competitors when they purchase more frequently from the focal firm. Accordingly, we posit:

***Hypothesis 7:** Existing customers' adoption and use of the focal firm's newly introduced online channel increase their likelihood of future purchase from the focal firm.*

***Hypothesis 8:** Existing customers' adoption and use of the focal firm's newly introduced online channel reduce their likelihood of future purchase from competitors.*

Order size can relate negatively to purchase frequency; the economic order quantity model from operations management research indicates that it is preferable to achieve larger orders with less frequency if the cost per transaction increases [66]. However, this assumption holds only if customer demand remains constant. As we discussed, adding a channel changes the focal firm's customer demand and market share as well as the size of the overall market [14, 25, 70]. Previous research reveals that customers change their purchase incidence with a firm more than they change their order sizes in a multichannel environment. As Ansari, Mela, and Neslin [5] note, marketing actions increase purchase incidence, not order size. More studies show that the addition or elimination of a channel has no effect on order size [35, 56]. In addition, no empirical evidence describes the effects of online adoption on order sizes for competitors. We thus cannot have prior expectations on these effects and instead empirically explore them without formulating hypotheses.

Data and Variables

Data Description

The data for this study came from a French database consultancy that collects and integrates longitudinal transactional data from multiple retailers' multiple channels, across multiple categories nationwide. We obtained customer transactional data from ten multichannel retailers that compete in the home decoration category, as we note in Table 3. These data spanned eight years, from January 2004 to December 2011. We selected one of these retailers as the focal firm, on the basis of three criteria. First, it introduced a new online channel in July 2007, so we could observe customers' shopping behavior before and after its introduction. Second, no retailers introduced any other new channels after this introduction, which eliminated the potential impact of the introduction of other firms' new channels on customer shopping behavior. Third, it was the third largest retailer in the panel, so we expect it to compete intensively with other retailers. To enable our analysis, we used the first forty-two months, prior to the new online introduction (January 2004 to June 2007), to calculate loyalty variables in the baseline period. We employed the next fifty-four months, after the event (July 2007 to December 2011), to construct our models for the analysis period.

To calculate customers' channel and firm loyalties prior to the introduction of the new online channel, we included only those customers who had purchased at least once before the online introduction and customers who continued to purchase in this category after the online introduction. Otherwise we would not be able to examine the effect of online adoption on customer purchase incidence and order size. With these selection rules we randomly chose a sample of 20,570 customers from the large data pool of 8,512,888 customers. All the retailers monitored customers' daily purchases,

Table 3. General Information About Retailers in the Sample.

Retailer identity	Percentage of transactions	Channel owned	First online transaction date
Focal Firm	20.9	Internet and catalog	September 2007
Competitor 1	34.6	Internet, catalog, and telephone	May 2003
Competitor 2	26.1	Internet, catalog, and telephone	September 2006
Competitor 3	6.9	Catalog	—
Competitor 4	5.5	Internet and catalog	January 2000
Competitor 5	5.3	Internet, catalog, and telephone	January 2005
Competitor 6	Less than 1	Catalog	—
Competitor 7	Less than 1	Catalog	—
Competitor 8	Less than 1	Internet	September 2005
Competitor 9	Less than 1	Internet and catalog	February 2007

though most customers do not shop that frequently in the home decoration category. Table 4 contains the descriptive information of the selected sample. The table shows that customers are on average sixty-one years old, and the majority (94.84 percent) are women. They purchase 1.12 times per year on average, with a maximum of 21.50 times per year in this category. Therefore, we aggregated purchase occasions, channel choice, and order size for each customer on a monthly basis.

Because this study focuses on the effects of competitors' channels on customer shopping behavior, we also aggregated data from nine competitive retailers. In these data, 4,553 (22.13 percent) of customers purchase from the focal firm and competitors, 2,013 (9.79 percent) of customers purchase exclusively from the focal firm, and 14,004 (68.08 percent) buy only from competitors. Furthermore, 4,740 customers had purchased from the focal firm before it introduced the online channel; 1,826 new customers were acquired during the period after the online introduction. The average monthly purchase frequency from the focal firm occupied 39 percent (380 times per month) of the total market before the introduction of the new online channel and increased to 41 percent (1,221 times per month) after this event.

Overall, the retailers in this category used three purchase channels: catalog, Internet, and telephone (see Table 3). We present the number of customers, the percentage of customers, and the average number of transactions per customer by whole categories (including all ten retailers), the focal firm, and competitors in Table 5. The focal firm had only a catalog channel before it added its Internet channel, and 4,016 (72.57 percent) customers had adopted the online channel by the end of the data period. Among customers of competitors, 4,008 (21.60 percent) bought products through online and offline channels during our study period, 4,207 (22.67 percent) purchased using catalogs and telephone orders, 8,525 (45.94 percent) purchased solely from the catalog, 1,025 (5.52 percent) bought only online, and 792 (4.27 percent) bought exclusively from the telephone channel. In a few cases, customers purchased from multiple firms or multiple channels in the same month; 3.9 percent of customers purchased from both the focal firm and competitors in the same month, and 5.2 percent purchased both online and offline in the same month. We accommodate those cases in our modeling approach.

Table 4. Descriptive Statistics for Selected Customers ($N = 20,570$).

Variable	M	SD	Min.	Max.
Purchases per year	1.12	0.96	0.25	21.50
Purchases over the relationship	9.52	7.72	2	172
Average purchase (euros)	78.25	136.70	0	11,587
Age	60.98	14.74	18	100
Gender (female)	94.85%			

Table 5. Data Description Characterized by Firms and Channels.

Type	Whole category			Focal firm			Competitors		
	Customer number	Percent	Transaction mean	Customer number	Percent	Transaction mean	Customer number	Percent	Transaction mean
Internet only	695	3.38	5.75	749	11.41	1.23	1,025	5.52	4.76
Catalog only	7,652	37.20	8.98	1,801	27.43	10.45	8,525	45.94	7.30
Telephone only	500	2.43	6.38	—	—	—	792	4.27	5.22
Online and offline	8,070	39.23	10.17	4,016	61.16	6.95	4,008	21.60	8.98
Catalog and telephone	3,653	17.76	10.35	—	—	—	4,207	22.67	9.72
Total	20,570	100.00	9.52	6,566	100.00	7.25	18,557	100.00	7.98

Variable Operationalization

We classified our variables into three groups: (1) non-time-variant variables from the baseline period data, before the online channel introduction; (2) time-variant variables from the analysis period, after the online channel introduction; and (3) customer demographic variables (age and gender). Following previous studies, we used the initialization period to compute the variables related to customers' firm and channel preferences, and the analysis period to determine those pertaining to state dependence and run models [5, 43, 67]. Table 6 presents the details of our operationalization.

Initialization period variables. We used two variables to identify customers' channel preferences and purchase status in the baseline period. The baseline online preference captured the level of online preference with competitors before the focal firm introduced the Internet channel, which was calculated by the number of purchases from competitors' online channels divided by the overall number of purchases in the initialization period [2, 35, 43]. In addition, we used a dummy variable to distinguish between new and existing customer groups. New customers are those who

Table 6. Variable Definitions.

Variable	Definition
<i>Initialization period</i>	
Customer group (existing/new customers)	= 1, if the customer starts to purchase with the focal firm before the online introduction; 0 otherwise
Baseline online preference with competitors	Purchases from competitors' online channels/overall purchases
<i>Analysis period</i>	
Online adoption and usage	= $\text{Log}(1 + \text{number of online purchases from the focal firm in the last month})$
Online state dependence from focal firm	= 1 if the customer purchased online from the focal firm in the last month; 0 otherwise
Catalog state dependence from focal firm	= 1 if the customer purchased from catalogs from the focal firm in the last month; 0 otherwise
Online state dependence from competitors	= 1 if the customer purchased online from competitors in the last month; 0 otherwise
Catalog state dependence from competitors	= 1 if the customer purchased from catalogs from competitors in the last month; 0 otherwise
Telephone state dependence from competitors	= 1 if the customer purchased on telephone from competitors in the last month; 0 otherwise
Last order size of focal firm	Order size of the previous purchase made from the focal firm
Last order size of competitors	Order size of the previous purchase made from competitors
Recency	Number of months since the customer made the previous purchase in the last month
Time trend	Square root of time period, $t = 0, \dots, 53$
<i>Customer demographics</i>	
Age	Continuous variables
Gender	Dummy variable (0 = female; 1 = male)

started purchasing from the focal firm after the online introduction; existing customers initially purchased from this firm, prior to the online introduction.

Analysis period variables. We employed last order size (LOS) and channel state dependence (CSD) to capture customers' past purchase status on a recent occasion. The last order size refers to the order size in the previous purchase occasion, and the channel state dependence is the purchase status from a channel in the last month [2, 5, 35]. To distinguish between the focal firm and competitors, we calculated two LOS variables and five CSD variables according to firm types. We also computed recency as the time elapsed since the last purchase. Recency, frequency, and monetary value variables (RFM) frequently appear in prior models to investigate customers' responses to different marketing activities [5, 70]. For the online adoption and usage variable, we calculated the log value of (1 + online purchases to date), to capture both forgetting and learning effects due to customers' use of an online channel introduced by the focal firm in the previous period [5].

Methodology

To evaluate individual customers' responses to the introduction of a new online channel, we employed a set of bivariate probit and tobit models to measure customers' purchase incidence, channel choice, and order size. Prior studies suggest that these models are superior in analyzing multichannel customer shopping behavior at the individual level and with a time dimension [5, 35, 71].

Specifically, we employed a bivariate probit model to determine whether a customer purchases from the focal firm and/or competitors in a particular month. Unlike univariate probit, the bivariate probit model can accommodate a situation in which a customer purchases from the focal firm and competitors in the same month [29]. The bivariate probit model with sample selection thus reveals which channel a customer uses, conditional on a purchase from the focal firm in a given month. We also considered the situation in which a customer might purchase through online and catalog channels in the same month. Finally, we designed two panel regression models with sample selection (in line with Tobit II specifications) to determine the average order size per transaction, conditional on a purchase from the focal firm or competitors, in a given month. Thus, our model equations are as follows:

Model 1: Firm choice

$$P_{itm} = \text{Purchase from firm } m, \text{ if } P_{itm}^* > 0; 0, \text{ otherwise} \quad (1)$$

$$P_{itm}^* = \beta_{im} G_{itm} + \varepsilon_{itm}, \quad (2)$$

where $m = 1$ (focal firm), 2 (competitors), and P_{itm}^* is the latent utility of customer i to purchase from firm m in month t .

Model 2: Channel choice

$$C_{itm} = \text{Purchase on channel } n \text{ from focal firm, if } C_{itm}^* > 0 \text{ \& } P_{it1}^* > 0; 0, \text{ otherwise} \quad (4)$$

$$C_{itm}^* = \delta_{in}H_{itm} + \mu_{itm}, \quad (5)$$

where, $n = 1$ (online), 2 (catalog), and C_{itm}^* is the latent utility of customer i to purchase on channel n from firm the focal firm in month t .

Model 3: Order size

$$Q_{itm} = Q_{itm}^*, \text{ if } P_{itm}^* > 0; \text{ unobserved, if } P_{itm}^* \leq 0 \quad (5)$$

$$Q_{itm}^* = \theta_{im}K_{itm} + \tau_{itm}, \quad (6)$$

where, Q_{itm}^* is the latent utility of order size from firm m in month t .

These three equations contain several explanatory variables in common, but some variables are unique to the specific equations. In [Table 7](#) we

Table 7. Variables of Purchase Incidence, Channel Choice, and Order Size Models.

Variable	Purchase incidence	Channel choice	Order size
<i>Baseline period</i>			
Customer group (existing/new customers)	√	√	√
Baseline online preference with competitors		√	
<i>Analysis period</i>			
Online adoption and usage	√		√
Online state dependence from focal firm	√	√	
Catalog state dependence from focal firm	√	√	
Online state dependence from competitors	√	√	
Catalog state dependence from competitors	√	√	
Telephone state dependence from competitors	√	√	
Last order size of focal firm			√
Last order size of competitors			√
Recency	√	√	√
Time trend	√	√	√
<i>Customer demographics</i>			
Age	√	√	√
Gender	√	√	√
<i>Interactions</i>			
Baseline online preference with competitors × Customer group		√	
Online adoption × Customer group	√		√

consider the composition of the vectors G_{itm} , H_{itm} , and K_{itm} . To enhance the integration of our models, we mean-center all variables except for dummies (i.e., customer segment, state dependence, and gender) and create several interaction terms in the models.

Results

To avoid collinearity, we checked the correlation matrixes of all variables included in our models (see Table 8). Two correlations are between .5 and .6 and the rest are less than .4, suggesting no large correlations exist between variables.² Table 9 presents the results of channel choice model, firm choice model, and order size model of the focal firm and competitors, respectively.

Results of Channel Choice Model

Online preference with competitors increased the probability that they would choose the newly introduced online channel (.003, $p < .001$), and it was negatively associated with the use of the focal firm's catalog channel ($-.004$, $p < .001$), in support of H1a instead of H1b. After the new online entry, online state dependence with competitors positively affected their likelihood of online adoption (.820, $p < .001$) and negatively affected catalog usage ($-.788$, $p < .001$), which supports H2.

These results suggest that customers who purchase more frequently from competitors' online channels are likely to have more online shopping knowledge and experience, so they are more likely to adopt and purchase from a new online channel introduced by the focal firm. Surprisingly, catalog state dependence with competitors also increased the probability of choosing the new online channel (.370, $p < .001$) and diminished the likelihood of using the existing catalog channel ($-.363$, $p < .001$). Thus, we do not find support for H3. Telephone state dependence with competitors had effects similar to those of catalog channels, although its effects on catalog selection are not significant.

Compared to new customers, existing customers of the focal firm were more likely to purchase on the existing catalog channel (.319, $p < .001$), and less likely to purchase from the new online channel ($-.316$, $p < .001$), which supports our expectation in H4 and H5, respectively. We discovered a positive interaction between baseline online preference with competitors and the customer group (.014, $p < .001$) in the Internet channel equation, with a corresponding negative interaction in the catalog channel equation ($-.013$, $p < .001$). The effect of online preference with competitors on channel choice was thus greater for existing than for new customers, suggesting support for H6.

²The correlation between Online Adoption * Customer Group and Online Adoption is 0.838. However, this high correlation does not impact our results, as we use them in separate models.

Table 8. Correlation Matrix.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Customer group	1.000															
2. Baseline online preference	-0.146	1.000														
3. Online adoption	0.339	-0.038	1.000													
4. Online SDF	0.090	-0.008	0.267	1.000												
5. Catalog SDF	0.217	-0.038	0.120	0.015	1.000											
6. Online SDCs	-0.026	0.167	0.009	0.008	-0.008	1.000										
7. Catalog SDCs	-0.063	-0.058	-0.025	-0.003	-0.005	-0.015	1.000									
8. Telephone SDCs	-0.032	-0.015	-0.012	-0.001	-0.002	0.006	0.009	1.000								
9. LOS of focal firm	0.558	-0.092	0.287	0.096	0.210	-0.040	-0.079	-0.039	1.000							
10. LOS of competitors	-0.157	0.162	-0.090	-0.033	-0.060	0.051	-0.009	0.041	-0.157	1.000						
11. Recency	-0.065	-0.027	-0.170	-0.070	-0.124	-0.104	-0.204	-0.103	-0.037	-0.006	1.000					
12. Time trend	0.000	0.000	0.220	0.032	0.018	0.026	0.029	-0.001	0.010	-0.016	0.016	1.000				
13. Age	-0.050	-0.341	-0.050	-0.016	0.005	-0.105	0.080	-0.017	-0.026	-0.150	0.001	0.000	1.000			
14. Gender	-0.059	-0.029	-0.045	-0.010	-0.018	-0.014	0.013	-0.010	-0.027	-0.011	0.035	0.000	0.066	1.000		
15. Baseline online preference with competitors * Customer group	-0.587	0.212	-0.175	-0.044	-0.150	0.055	0.033	0.019	-0.387	0.137	0.024	0.000	-0.021	0.037	1.000	
16. Online adoption * Customer group	0.321	-0.041	0.838	0.228	0.071	0.008	-0.024	-0.013	0.179	-0.062	-0.129	0.181	-0.055	-0.022	-0.159	1.000

Notes: SDF = state dependence from focal firm; SDC = state dependence from competitors; LOS = Last order size.

Table 9. Model Results.

	Channel choice		Firm choice		Order size	
	Online	Catalog	Focal firm	Competitors	Focal firm	Competitors
Constant	-0.643***	0.691***	-2.625***	-1.385***	-261.426***	55.064***
Online adoption and usage			1.456***	-0.136***	102.526***	6.168*
Customer group (existing customer=1)	-0.316***	0.319***	1.265***	-0.376***	145.652***	-1.018
<i>Variables with competition</i>						
Baseline online preference with competitors	0.003***	-0.004***				
Online state dependence from competitors	0.820***	-0.788***	-0.122***	0.306***		
Catalog state dependence from competitors	0.370***	-0.363***	-0.035*	0.287***		
Telephone state dependence from competitors	0.175	-0.113	-0.118***	0.301***		
Last order size of competitors					0.124***	0.177***
<i>Variables with the focal firm</i>						
Online state dependence from focal firm	1.294***	-1.231***	0.126***	-0.029		
Catalog state dependence from focal firm	-0.133***	0.228***	0.307***	-0.106***		
Last order size of focal firm					0.291***	0.194***
<i>Control variables</i>						
Recency	0.046***	-0.045***	-0.006***	-0.008***	0.217***	0.038
Time trend	0.074***	-0.070***	0.036***	0.044***	4.147***	0.243
Age	-0.011***	0.011***	0.002***	0.001***	0.164***	-1.204***
Gender	0.060	-0.067	-0.116***	-0.024**	-14.801**	-5.716***
<i>Interactions</i>						
Baseline online preference with competitors' Customer group	0.014***	-0.013***				
Online adoption and usage' Customer group			-1.411***	0.062***	-108.116***	-2.566

With respect to the effects of the focal firm' channels and other control variables, online state dependence with the focal firm drove customers to purchase from the new online channel (1.294, $p < .001$), and catalog state dependence with the focal firm enhanced catalog purchases of the focal firm (.228, $p < .001$). Thus, different from the response to competitors' channels, customers do have the tendency to follow their channel status with the focal firm on the last purchase occasion. The time trend variable revealed positive impacts on the choice of the online channel (.074, $p < .01$) and negative effects on the choice of the catalog channel (-.070, $p < .001$). The two recency coefficients also suggested that with a long gap between purchases, customers were more likely to purchase online (.046, $p < .001$) and less likely to purchase through the catalog (-.045, $p < .001$). These results suggested that customers were migrating to the new online channel since the introduction of this channel. Age negatively affected online usage (-.011, $p < .001$) and positively affected catalog usage (.011, $p < .001$), which is consistent with previous studies (e.g., [5]). Gender did not affect channel choice for the focal firm, probably because of the very low ratio of the male population compared to the female group.

Results of Firm Choice Model

As we expected, customers' adoption and use of the focal firm's newly introduced online channel increased new customers' purchase probability with the focal firm (1.456, $p < .001$) and reduced their purchases with competitors (-.136, $p < .001$). Online adoption and usage exerted fewer effects on the purchases of existing customers, but these customers were also more likely to purchase from the focal firm (1.456 - 1.411 = 0.045, $p < .001$) and less likely to shop from competitors after adopting the new online channel (-.136 + .062 = -.074, $p < .001$), in support of H7 and H8, respectively.

In intuitively appealing results, the effects of channel state dependence variables followed the rule: a purchase in the previous month (regardless of the channel used) increased the probability of another purchase from the same firm and reduced the likelihood of purchasing from competitors. Our results revealed significant, negative effects of recency on the purchase incidence for both the focal firm (-.006, $p < .001$) and competitors (-.008, $p < .001$), which may reflect a feature of the home decoration category. On average, customers made only 1.12 purchases per year—relatively few compared with other industries [5, 70]. Because the average period between two purchases was so long, it might be difficult for customers to recall the particular firm or brand from which they bought previously, and their purchase patterns could be interrupted easily by their use of other firms or brands. Therefore, the longer the time since their last purchase, the less likely customers may be to purchase from the firm. Because the time trend variable positively influenced purchase incidence for the focal firm (.036, $p < .001$) and competitors (.044, $p < .001$), customers appeared more likely to purchase from both sides over time. Finally, age showed a positive effect on purchase incidence for the focal firm (.002, $p < .001$) and competitors (.001, p

< .001), whereas gender exerted a negative impact on purchase incidence for the focal firm ($-.116, p < .001$) and competitors ($-.024, p < .001$). Thus, older women were more likely to purchase.

Results of Order Size Model

For the order size of the focal firm, the online adoption and usage variable had a strong positive effect on the average order size of new customers (102.526, $p < .001$), but reduced the average order size of existing customers ($102.526 - 108.116 = -6.41, p < .001$). With respect to the order size of competitors, the online channel adoption and usage increased the average order size of both new and existing customers (6.168, $p < .05$); the effect of customer group was not significant.

The firm state dependence variables—last order sizes for both the focal firm and competitors revealed significant, positive impacts on the resultant order sizes in both cases ($p < .001$). When a customer spends more on previous purchases (regardless of firm), he or she likely spends more per transaction thereafter. Age positively influenced the order sizes of the focal firm (.164, $p < .1$) but reduced the order sizes of competitors ($-1.204, p < .001$). Female customers were more likely to purchase a larger order size from both the focal firm and competitors than male customers ($p < .001$).

Discussion and Implications

Theoretical Implications

This study has investigated (1) whether customers' previous use of competitor channels affects customer migration to the new online channel of a focal firm, and how, as well as (2) the effects of online channel adoption and use on customer purchases (firm choice and firm order size) from the focal firm and from its competitors. We summarize our findings in Table 10 and below discuss the theoretical implications of our findings.

Effects of Customers' Previous Use of Competitors' Channels on Channel Migration

Our findings specifically answer three questions that are related to the first research objective of our study.

Do competitors' existing online channels help or impede the new online channel entrant? The existence of competitors' online channels is not always harmful for a late channel entrant to introduce its new online purchase channel. Instead, customers' previous purchases from competitors' previously introduced online channels (including both online preference and online state dependence with competitors) promote their adoption and migration to the

Table 10. Summary of Results for Hypothesis Testing.

Hypothesis	Results
H1a: Customers who have high online channel preferences with competitors are more likely to choose the focal firm's newly introduced online channel than its existing catalog channel.	Supported
H1b: Customers who have high online channel preferences with competitors are more likely to choose the focal firm's existing catalog channel than its newly introduced online channel.	Not supported
H2: Customers who purchased from competitors' online channels on the last occasion are more likely to choose the focal firm's newly introduced online channel.	Supported
H3: Customers who purchased from competitors' catalog channels on the last occasion are more likely to choose the focal firm's existing catalog channel.	Not supported
H4: Existing customers of the focal firm are more likely to purchase through the existing catalog channel than new customers acquired after the introduction of the online channel by the focal firm.	Supported
H5: New customers of the focal firm are more likely to purchase through the new online channel than existing customers.	Supported
H6: Customers' online preferences with competitors has a greater effect on the adoption and use of the new online channel by existing customers than by new customers.	Supported
H7: Existing customers' adoption and use of the focal firm's newly introduced online channel increase their likelihood of future purchase from the focal firm.	Supported
H8: Existing customers' adoption and use of the focal firm's newly introduced online channel reduce their likelihood of future purchase from competitors.	Supported

new online channel by the late channel entrant. These findings are new in the multichannel research, but are consistent with previous studies on competitive advertising. Competitive advertising that features similar products or services can accelerate innovation adoption or enhance sales because it can increase penetration rates of new products or services, and awareness of customer needs [3, 59]. For example, Prins and Verhoef [59] reveal that competitive mass advertising on service shortens customer adoption duration of new services, and Van Diepen, Donkers, and Franses [70] note that competitive direct mailings increase the revenues of the focal firm in the short term. Our research suggests that the benefits of competitors' actions are also salient with respect to customer adoption of a new online channel. By shopping from competitors' online channels, customers learn from these experiences and obtain greater Internet knowledge, likely perceive lower risks of shopping online, and are more prone to purchase from the online channel in general. Therefore, they are more likely to adopt and use a new online channel introduced by a late entrant.

Do customers keep purchasing from the same channel when they switch from competitors to the focal firm? Our research suggests that customers do not always follow their past channel state dependence when switching from competitors to the focal firm. If a customer purchased from competitors' offline channels in the last month, he or she is more likely to choose a different channel (the new online channel) when purchasing from the focal firm. Therefore, in response to the research challenge proposed by Neslin and Shankar [50], our findings reveal that customers may perceive the same channel differently from one firm to another. We propose several

reasons to explain the failure of channel inertial effect on customer channel choice. Learning theory indicates that customers maintain a deliberate mindset and are likely to make cautious decisions in an unstable or difficult context [28, 78]. Only when the behavior is learned and takes place in a constant environment, can customers follow an automatic cognitive process to repeat past behavior [1, 54, 78]. Moving from competitors to the focal firm represents a changing environment. Therefore, customers are likely to reevaluate the benefits or costs between online and offline channels, instead of automatically repeating previous channel usage behavior. The study of Moe and Yang [44] supports this argument and asserts that the short-term effect of inertia can be disrupted easily by a new competitive online entry.

With respect to the cost between different channels, online shoppers have instant access to the websites of different firms, whereas catalog shoppers depend on the mailing to get access to product information. Prior research also suggests that online shoppers pay lower switching costs to change providers [15, 42]. Therefore, customers are likely to pay a higher switching cost for choosing the catalog channel in comparison to using the online channel, when moving from competitors to the focal firm. Another reason relates to the occurrence of supply-side effects. Retailers introducing new online channels can actively encourage or reward customers for shopping through their newly introduced online channels. Because customers follow cautious decision-making processes when switching between firms, they are more likely to consider and be affected by these encouragements and thus choose the new online channel for shopping.

Do existing and new customers respond differently to the introduction of a new online channel? Compared to new customers, the existing customers are more engaged with the established catalog channel from which they have already shopped and less likely to purchase through the new online channel. This finding is consistent with existing literature, such that customers making more purchases or having a longer relationship with firms are more likely to stay in a firm's established purchase channels instead of a newly introduced online channel [24, 40, 68]. Although existing customers are more likely to be locked in the existing catalog channel, their previous purchase experiences with competitors' online channels can greatly promote the chance to purchase from the new online channel. On the other hand, the new customers who are acquired after the introduction of a new online channel by the focal firm may not have established their channel preferences for the focal firm and are thus more likely to purchase from the new online channel than existing customers. These results suggest that firms consider different marketing strategies for the two groups of customers.

Effects of Online Channel Adoption and Usage on Customer Purchases from the Focal Firm and Competitors

Existing studies indicate that the benefits firms could reap from online channel introduction decline as firms fall farther behind in entering the market [27, 33].

Geyskens, Gielens, and Dekimpe [27] find an inverted U-form relationship between the performance potential of online channel addition and entry order. Our research shows that even a late online channel entrant can still benefit from introducing an online purchase channel. The effect of online channel is not limited to increasing customer purchases with the focal firm; it diminishes the purchases with competitors for both existing and newly acquired customers. Besides, online channel adoption and usage greatly enhance the average order size of the focal firm spent by the new customers. However, our findings also reveal that existing customers reduce their order sizes slightly after the adoption of the online channel, and both new and existing customers could increase the order sizes from competitors after this action.

Managerial Implications

Our research has several implications for practitioners who plan to introduce a new (online) channel but whose actions are later than some of their competitors. First, managers should tailor their channel strategies to accommodate the special needs of new and existing customers. In other words, they can focus on stimulating the online purchases of new customers who are intrinsically more likely to purchase from the new online channel. Managers should be cautious in migrating new customers to the new online channel, because existing customers are more locked into the existing catalog channel and may be unwilling to be forced to purchase through the new online channel. Therefore, managers can consider retaining the relationship with existing customers through the existing catalog channel, and migrating these customers gradually to the new online channel.

Second, managers should consider the effects of customers' previous purchases competitors' online and offline channels. Although existing customers have a higher preference for the existing catalog channel, their previous purchases from competitors' online channels greatly promote the chance of adopting the new online channel. Knowing customers' preferences for competitors' channels (e.g., through tracking cookies, profile matching, and mouse tracking) could help managers better predict customers' responses to a newly introduced channel.

Third, managers should not hesitate to introduce their own online channels even if competitors have already done so long ago. Our study reveals a positive effect of online channel adoption on customer revenue as well as a negative effect of online channel adoption on purchase frequencies with competitors. Although we focus on the Internet as a shopping channel, similar implications likely emerge for firms that launch other new online marketing channels (e.g., social networks) or mobile online channels (e.g., mobile Web, mobile applications, and iPad applications), which increasingly influence the ways customers interact with firms.

Last but not least, this research also has implications for firms that introduce online channels earlier than competitors. According to our findings, firms that introduce their online purchase channels earlier than their competitors actually help their competitors unintentionally by promoting the adoption of their new

online channels. To prevent this, managers of early online-channel entrants should reward customers for being loyal to shopping through their online channels, for instance, by launching online loyalty programs or activities.

Limitations and Further Research

This study has several limitations that provide opportunities for ongoing research. First, limited by data availability, we investigated how cross-channel competition affects new online channel adoption and customer migration between Internet and catalog channels. It is still unclear whether the implications of this research can be applied to the context of brick-and-mortar stores. Furthermore, with the proliferation of mobile technology and social media, firms increasingly introduce various channels and touchpoints (e.g., mobile Web, mobile applications, social media, and showrooms) to interact with their customers. Customers no longer live in a multichannel but rather an omnichannel world where they use various channels and touchpoints during the shopping process [57, 73]. Because each channel possesses unique features that might influence customer multichannel shopping behavior [53], additional research could investigate customer migration across different channel or touchpoint combinations in the competitive environment.

Second, we uncovered an effect of cross-channel competition on customer buying. Additional research might explore its effects on customer searches for product information or use of after-sales services. A customer's shopping process consists of multiple shopping phases [36, 48]. Channel usages vary across these shopping phases, such that the use of a particular channel in one shopping phase does not guarantee its use at other times [26, 74]. Further research could extend this study by considering multiple phases of customer shopping processes.

Third, we focused on the home decoration category, and our data set did not contain information about marketing communications, or data to identify customers' attitudes toward online shopping in other sectors (e.g., books, music, or electronic products). Future studies should replicate our findings in other industries or product categories to investigate their generalizability, and include other covariates that might affect customer shopping behavior in the competitive environment.

Finally, further research could consider applying other theories or models to investigate other research issues related to our study. For instance, game theory is particularly powerful in exploring the actions of market players in a competitive environment [31, 34]. Additional studies could employ this theory to investigate related research questions in the competitive setting, such as exploring the factors that impact firms' reactions to the introduction of a new channel by competitors.

Conclusion

When a late entrant (online channel introducer) enters the online market, crucial questions involve how customers migrate among different channels

and alter their purchase volumes under the effects of competitors' channel offerings. By addressing these questions, this study makes several key contributions to existing knowledge. First, we extend prior channel migration frameworks by incorporating the effects of customers' previous purchases from competitors' online and offline channels. We find that the online preference with competitors promotes customers' adoption and migration to the new online channel by the late channel entrant. This effect is greater for a firm's existing customers than newly acquired customers after the introduction of the new online channel. Second, our research proves that customers may perceive the same channel (such as the catalog channel) differently from one firm to another, which has not been empirically investigated by prior research. Furthermore, our research shows that a late online channel entrant can still benefit from introducing an online purchase channel, as online channel adoption and usage increase purchase frequency from the focal firm and diminish purchase frequency from competitors.

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JING LI (jing.li@tue.nl; corresponding author) is a researcher in the Technology Entrepreneurship and Marketing (ITEM) group of the School of Industrial Engineering at Eindhoven University of Technology, Netherlands. Her research interests include multichannel customer management, e-marketing, customer experience management, and customer relationship management. Her work has been published in the *Journal of Retailing* and leading international conference proceedings, such as European Marketing Academy Conference and INFORMS Marketing Science Conference.

UMUT KONUŞ (u.konus@uva.nl) is an associate professor of marketing at Amsterdam Business School at the University of Amsterdam. He received his Ph.D. in marketing from the Faculty of Economics and Business at the University of Groningen, Netherlands. His research interests concern multichannel customer management, customer channel migration, e-marketing, technology-based self-service channels, new products management, and relationship marketing. His research has appeared in the *Journal of Retailing*, *Harvard Business Review*, *International Journal of Research in Marketing*, and *Journal of Interactive Marketing*.

FRED LANGERAK (f.langerak@tue.nl) is a professor of product development and management in the Technology Entrepreneurship and Marketing (ITEM) group of the School of Industrial Engineering at Eindhoven University of Technology, Netherlands. His research focuses on means for improving the process of conceiving, designing, developing, and bringing new products to market, and managing the product post-launch. His research has appeared in *Journal of Product Innovation Management*, *International Journal of Research in Marketing*, *Journal of Retailing*, *IEEE Transactions on Engineering Management*, *Marketing Letters*, *Journal of Retailing*, and others.

MATHIEU C.D.P. WEGGEMAN (m.c.d.p.weggeman@tue.nl) is a professor of organization science in the Technology Entrepreneurship and Marketing (ITEM) group of the School of Industrial Engineering at Eindhoven University of Technology, Netherlands. His research focuses on organizational design, innovation management, and work processes in knowledge-intensive organizations. He has served on the editorial board of *Organization Studies* and has published in *R&D Management*, *Journal of Product Innovation Management*, *Human Relations*, *Journal of Organizational Change Management*, and others.