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RESEARCH ARTICLE

DISENTANGLING THE IMPACT OF OMNICHANNEL INTEGRATION ON CONSUMER BEHAVIOR IN INTEGRATED SALES CHANNELS[1]

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"Brick-and-mortar" retailers, when expanding their businesses to online channels, can either add a separate online channel or integrate channels to enhance service offerings. Although past studies on channel choice have yielded insights into factors affecting consumers' channel preference, there is a dearth of research that sheds light on when and why massive investments into channel integration would be preferred over online optimizations. To this end, we construct and validate a theoretical model that posits omnichannel integration services for acquisition and recovery as predictors of consumers' online channel preference through influencing their perceptions of convenience and risk. Our experimental study reveals how distinct configurations of cross-channel service offerings affect consumers' channel evaluations and decisions, as well as how complementarities from channel integration across transaction and post-transaction phases can prevail over pure online substitutes. Consequently, this study bridges diagnostic and prescriptive research streams on multichannel and omnichannel retail by attesting to channel integration as a viable channel differentiator. From a practical standpoint, we compare 12 distinct channel configurations with regard to consumers' core evaluative criteria and highlight the value of omnichannel integration since efficiency improvements to the online channel can only serve as a partial substitute to channel integration.

Keywords: Omnichannel retail, multichannel retail, channel integration, channel synergies, electronic commerce, convenience, risk

Introduction

"Brick-and-mortar" retailers are under immense pressure to expand their businesses to online channels (Jopson 2013). Apart from a desire to exploit the continued growth of electronic commerce (e-commerce) with estimated annual growth rates of 23% (Statista 2017), the expansion of brick-and-mortar retailers to online channels has also been fueled by intense competition from their pure online counterparts (Manjoo 2012). Enders and Jelassi (2009) hence alleged that the question for brick-and-mortar retailers has shifted from "whether" to "how" this expansion should be pursued.

[1]Paul Pavlou was the accepting senior editor for this paper. Yulin Fang served as the associate editor.

Past studies have advocated two distinct approaches for brick-and-mortar retailers to expand to online channels. In its simplest form, brick-and-mortar retailers can add a separate online channel to extend the reach of their businesses beyond the immediate vicinity of their localized stores. This in turn allows brick-and-mortar retailers to compete with their pure online counterparts without being constrained by existing business operations and/or technological infrastructures. Retailers who are "involved in selling merchandise or services to consumers through more than one channel" (Zhang et al. 2010, p. 168), but cultivate online and offline channels in separated silos, are labeled *multichannel retailers* (Verhoef et al. 2015). Alternatively, brick-and-mortar retailers can leverage preexisting physical assets to bolster the appeal of online channels over and above that of multichannel retail. For this approach, online transactions are augmented by offering complementary services to facilitate transactional activities performed via offline channels. Such complementary services—which we conceive as *omnichannel integration services*—can include in-store pickup as well as servicing and return after an online transaction. Instead of two separate channels, *omnichannel retailers* harness synergies between online and offline channels to broaden the range of service options beyond what is feasible via either channel (Luo et al. 2016; Veit et al. 2014; Verhoef et al. 2015).

Nevertheless, omnichannel retail is both costly and risky (Chen et al. 2018). Because brick-and-mortar retailers carry historical baggage due to previous investments in business operations and technological infrastructures, the provision of omnichannel integration services not only demands fundamental changes to entrenched business processes, but it also requires major upgrades to legacy systems (Gustafson 2017). To offer omnichannel integration services, conventional business processes of brick-and-mortar retailers must be adapted to not only permit merchandise to be pulled from shelves for in-store pickup, but to also check, inventorize, and/or process refunds for returns of defective products that have been purchased online. These adaptations to business processes should be accompanied by corresponding investments in supporting systems. For instance, store pickup can only happen if real-time information on the inventory level of every store is accessible through integrated warehouse management systems. Likewise, store returns and refunds can take place only if the pricing and billing systems between online and offline stores are integrated. Yet, even if brick-and-mortar retailers were to undertake costly transformations to become omnichannel retailers, there is still the risk of failure (Matthews 2013). A recent survey of retail CEOs revealed that omnichannel retail gives rise to out-of-stock as an emerging challenge in supply chain management for 25% of retailers, whereas 15% cited mistakes with fulfillment, and 13% reported inventory accuracy problems (Business Insider 2017). Since brick-and-mortar retailers, when expanding to online channels, are confronted with a strategic choice of whether to pursue a multichannel or omnichannel approach, it is imperative for these retailers to comprehend the benefits of omnichannel retail relative to those of its multichannel counterpart. Insofar as omnichannel integration services do not yield benefits beyond those of multichannel retail, there is little incentive for brick-and-mortar retailers to incur massive costs and undertake considerable risk in realizing the former.

Our review of extant literature indicates that prior research into multichannel and omnichannel retail can be divided into *diagnostic* and *prescriptive* streams. Studies belonging to the diagnostic research stream have typically explored drivers of consumers' channel preference for online or offline channels (e.g., Lim et al. 2012; Montoya-Weiss et al. 2003) without elaborating on the mechanisms by which retailers can harness synergies across multiple channels to shape channel preferences. Conversely, prescriptive studies, despite shedding light on potential synergies between online and offline channels in augmenting consumers' shopping experience (e.g., Gensler et al. 2012; Verhoef et al. 2007), tend to place greater emphasis on mitigating the adverse effects of channel switching behaviors (e.g., Chiu et al. 2011; Verhoef et al. 2007) or the challenges associated with channel integration (Lee et al. 2013; Luo et al. 2016; Yan and Pei 2011). Prescriptive studies, in this sense, do not delve into the impact of channel integration on consumers' channel preference. Conceivably, the desirability of channel integration, as seen from a consumer-centric perspective, remains a critical but unexplored question in both multichannel and omnichannel research (Neslin et al. 2006; Neslin and Shankar 2009; Verhoef et al. 2015; Zhang et al. 2010). To this end, we introduce omnichannel integration services as an emerging business practice pursued by retailers to exploit synergies between online and offline channels in augmenting the appeal of the online channel as a preferred medium of transaction for consumers. Specifically, we advance a theoretical model that delineates between omnichannel integration services for *acquisition* and *recovery* as predictors of consumers' online channel preference through influencing the latter's convenience and risk perceptions. In so doing, we attempt to provide an answer to the following research question: *How do omnichannel integration services affect consumers' evaluation and channel preference when transacting online?*

The remainder of this paper is structured as follows. First, we review extant literature on multichannel and omnichannel retail to pinpoint the knowledge gap that motivates our work. Next, we advance a theoretical model that posits omnichannel integration services as a means of bolstering the convenience

of online transactions while concurrently reducing their risks when compared to service offerings by multichannel retailers. Specifically, to formulate testable hypotheses, we subscribe to a fine-grained conceptualization of convenience and risk that is further contextualized to omnichannel retail. We then outline the methodological procedures for validating the theoretical model via an experimental study. We conclude by highlighting implications for theory and practice as well as outlining avenues for further research.

An Overview of Prior Research on Multichannel and Omnichannel Retail

The advent of e-commerce has culminated in extensive research on multichannel retail (e.g., Datta 2011; Pavlou and Fygenson 2006). Past studies on multichannel retail tend to treat online and offline channels as mutually exclusive (e.g., Montoya-Weiss et al. 2003) by investigating retail settings where the two channels operate as silos. More recently, scholars have alluded to omnichannel retail as a way of integrating online and offline channels to counter emerging consumer trends in research shopping (Chiu et al. 2011; Verhoef et al. 2007) and deliver a seamless shopping experience (e.g., Banerjee 2014; Herhausen et al. 2015; Sousa and Voss 2006; Wu and Chang 2016). However, omnichannel retail demands notable investments in technological infrastructure (Luo et al. 2016) with questionable benefits: only Cao and Li (2015) have reported noticeable growth in sales in the context of omnichannel retail. Consequently, despite the optimism surrounding omnichannel retail, the extent to which it holds an advantage over its multichannel counterpart in driving consumption behavior remains an elusive knowledge gap within extant literature.

Research on multichannel and omnichannel retail can be broadly divided into two major research streams, namely *diagnostic* and *prescriptive* (Chen et al. 2018). The diagnostic research stream endeavors to comprehend consumers' channel preference for online or offline channels. Owing to the complexity of consumers' channel preference (Balasubramanian et al. 2005), much of the work belonging to the diagnostic research stream is centered on deriving contingency factors that dictate consumers' channel choice, which range from *channel differentiators* (e.g., assortment, availability of post-transaction services, and speed of product acquisition) to *channel attributes* (e.g., convenience, risk, and service quality), *external influences* (e.g., marketing communication and subjective norms), *individual differences* (e.g., demographics, experience, and geographical proximity), and *purchase specifics* (e.g., purchase size) (see Appendix A for an overview). A central tenet of diagnostic studies is the importance of channel consistency in multichannel environments. Findings have attested to inconsistent product assortments or service offerings across channels as having an adverse impact on consumers' channel preference (e.g., Banerjee 2014; Gu and Tayi 2017; Sousa and Voss 2006; Wu and Chang 2016). Yet, despite the prominence accorded to channel consistency in diagnostic studies, there is a dearth of research, with the exception of Bendoly et al. (2005) and Herhausen et al. (2015), that scrutinizes channel integration as a viable channel differentiator in multichannel environments. Whereas Bendoly et al. demonstrated that channel integration can affect customer retention during stockouts, Herhausen et al. supplied preliminary insights into how channel integration can drive consumers' evaluations of risk and service quality. But at the same time, Bendoly et al.'s and Herhausen et al.'s work examines channel integration at an aggregate level and does not differentiate among various types of omnichannel integration services nor deliberate on their feasibility at distinct phases of the transactional process. In this sense, *diagnostic studies*, while attesting to the integration between online and offline channels as a salient channel differentiator in shaping consumers' channel preference in multichannel environments, stop short of generating insights into how such integration can be realized.

Conversely, *prescriptive* studies are aimed at unearthing (dis)synergies from deploying multiple channels across distinct phases (i.e. pre-transaction, transaction, and post-transaction) of a singular purchase (Gensler et al. 2012). Although there is little dispute that channel integration could potentially boost retailers' ability to offer innovative services and improve their operational efficiency (Oh et al. 2012), the complexity of omnichannel setups (Lee et al. 2013; Yan and Pei 2011) has prompted a series of prescriptive studies that accentuate the challenges associated with such integration, ranging from costly modifications to business practices (Hansen and Sia 2015) to the suboptimization of operational functions (Mahar and Wright 2017), and the presence of technical hurdles (Lewis et al. 2014). Furthermore, most prescriptive studies have hailed channel integration as a preventive measure against retailer switching between pre-transaction and transaction phases (Chiu et al. 2011; Gensler et al. 2012; Pavlou and Fygenson 2006; Verhoef et al. 2007). In comparison, there is much less progress being made in unraveling the complementary effects of different channels between transaction and post-transaction phases. Transaction and post-transaction phases are generally tied to the same retailer because the latter covers after-sales activities such as product guidance, servicing and repairs, as well as returns and refunds

(Chiang et al. 2006; Verhoef et al. 2007). In other words, the accessibility of service offerings in the post-transaction phase is precipitated on consumers' decision in the transaction phase, as post-transaction activities are part of the product-service bundle offered by the retailer with whom the transaction was concluded. Arguably, as opposed to multichannel retail, the design of omnichannel integration services must take into account the natural progression of customer interactions from transaction to post-transaction phases in order to grant consumers true flexibility in utilizing separate channels for performing purchase and post-purchase activities (Saeed et al. 2003).

From above, it is apparent that an investigation of omnichannel integration necessitates an integration of diagnostic and prescriptive research streams. On one hand, diagnostic studies have yielded rich insights into the drivers of consumers' channel preference even though they have largely ignored the mechanisms by which cross-channel synergies can be harnessed by retailers to shape such channel preference. On the other hand, prescriptive studies, despite recognizing the value of channel complementarities in streamlining consumers' shopping experience, fail to elucidate how cross-channel synergies could be harnessed to shape consumers' channel preference across distinct phases of the transactional process (especially for the transaction and post-transaction phases). We therefore seek to bridge the chasm between the diagnostic and prescriptive research streams by positioning omnichannel integration services as a means for retailers to blur the line between online and offline channels in delivering a seamless shopping experience from transaction to post-transaction phases.

Toward a Theoretical Model of Consumers' Channel Preference in Omnichannel Retail

There is general consensus among scholars that consumers' evaluation process leading up to their channel choice adheres to a three-step procedure (e.g., Gensler et al. 2012; Gupta et al. 2004; Lim et al. 2012; Montoya-Weiss et al. 2003; Verhoef et al. 2007). It begins with a consumer's assessment of the existence of channel differentiators (e.g., availability of post-transaction services), followed by his/her evaluation of the benefits and opportunity costs associated with transacting via the channel before culminating in his/her preference for the channel. Contextualizing the channel evaluation framework to omnichannel retail, we advance channel differentiators and evaluation criteria that are pertinent to consumers' channel choice in such retail environments (see Figure 1).

Omnichannel Integration Services as Channel Differentiators

Although diagnostic studies have testified to omnichannel integration services as potential channel differentiators in multichannel environments, their prescriptive counterparts have hinted at the cruciality of distinguishing between transaction and post-transaction phases during channel integration. This is because preempting future situations of servicing or returns in the post-transaction (or recovery) phase could factor into consumers' channel choice in the transaction (or acquisition) phase (see Chiang et al. 2006; Verhoef et al. 2007). Whereas acquisition denotes an inevitable activity that every consumer must perform eventually, recovery refers to prospects of future customer interactions that consumers may or may not come across. In this sense, even though interdependencies exist between acquisition and recovery, they are not directly comparable in terms of how they are evaluated by consumers at the point of purchase. We, therefore, delineate between omnichannel integration services for *acquisition* and *recovery* as channel differentiators for transaction and post-transaction phases respectively. While both types of services augment online transactions by offering complementary service capabilities offline, omnichannel integration services for *acquisition* facilitate consumers in obtaining products offline after making online purchases whereas their *recovery* counterpart permit consumers to accomplish servicing and return activities in a physical outlet.

Convenience and Risk Perceptions as Channel Evaluation Criteria

To ascertain the criteria applied by consumers in evaluating channel differentiators, we turn to prior research on channel choice. Even though our review of extant literature on channel choice has unveiled a considerable number of theoretical frameworks for characterizing consumers' evaluation criteria (see Appendix B), the majority of these frameworks encapsulate the shared principle that channel choice is governed by consumers' cost-benefit analysis of channel offerings (e.g., Chiang et al. 2006; Gensler et al. 2012). When making channel choice decisions, consumers are inclined to express the benefit of one channel over another through its convenience (Choudhury and Karahanna 2008), while treating risk as a cost driver (e.g., Bhatnagar et al. 2000; Gupta et al. 2004; Herhausen et al. 2015; Wang et al. 2016). In this sense, channel integration can circumvent restrictions inherent to single channel alternatives and bundle benefits that would otherwise be exclusive to either online or offline channels (Avery et al. 2012). Moreover, as illustrated in Appendix B, the convenience-risk paradigm is robust enough to subsume

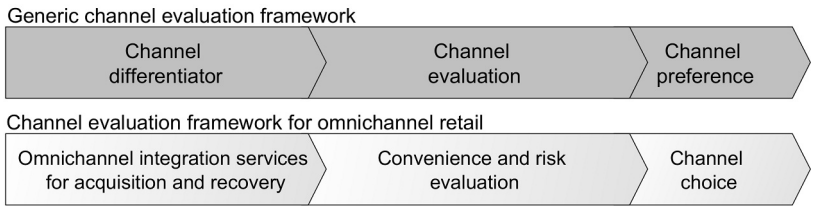

Figure 1. Omnichannel Evaluation Framework

key channel choice considerations espoused by various theoretical frameworks (Bhatnagar et al. 2000; Gensler et al. 2012; Herhausen et al. 2015; Montoya-Weiss et al. 2003; Wang et al. 2016). We therefore posit the trade-off between convenience and risk as the primary appraisal mechanism underpinning consumers' channel evaluation process in omnichannel environments. Because past studies have insinuated that omnichannel retail may embody considerations distinct from their multichannel counterpart (Banerjee 2014; Saeed et al. 2003; Sousa and Voss 2006), we are cognizant of the need to carefully reconsider what constitutes convenience and risk in the context of omnichannel environments.

Convenience Perceptions in Omnichannel Retail

Service convenience is usually conceived as the time and effort expended by a consumer in purchasing and consuming a product or service (Seiders et al. 2007). Past studies on multichannel retail have often referred to convenience as a "customer's perception of the efficiency of interaction with a seller" that is traditionally characterized by two interrelated elements: *speed* and *effort* (Choudhury and Karahanna 2008, p. 184). Because online and offline channels operate in silos for multichannel retailers, prior research has displayed a tendency to collapse speed and effort when theorizing convenience in multichannel environments. When acquiring products in a physical store, speed until consumption is strongly tied to the amount of effort expended by consumers. This is because a service delay in the physical world would automatically translate into greater effort required for completing the transaction (Berry et al. 2002; Seiders et al. 2007). The same can be said for online channels where speed is determined by the transactional duration and the time until delivery. Since time until delivery is dictated by the shipping options being offered, variations in convenience among online transactions can be attributed to the amount of time and effort consumers must devote to transacting with the store.

In contrast to multichannel environments, the speed and effort of a transaction are not necessarily intertwined in omnichannel retail. If omnichannel integration services were to be present, an improvement in speed does not necessarily lead to less effort. For example, choosing to pick up a purchase in store over having it delivered implies less time until consumption, but getting to the store could be more effortful than opting for the delivery option. Consequently, cross-channel synergies afforded by omnichannel integration services point to a necessity to conceptually separate speed and effort in omnichannel retail in order to cater for more fine-grained appreciation of speed and effort convenience.

Furthermore, the convenience of choosing among multiple paths for service delivery, which is afforded by omnichannel integration services, cannot be fully captured by speed and effort alone (Saeed et al. 2003). Omnichannel integration services bestow consumers with the ability to accomplish transactional activities across multiple channels (Banerjee 2014), thereby opening up a larger range of options (Saeed et al. 2003). Indisputably, adherence to a single channel always imposes a certain degree of channel-misfit or inconvenience on customers (Viswanathan 2005). Omnichannel integration services could potentially reduce this inconvenience by introducing flexibility that flows from the accessibility of multiple alternatives (e.g., allowing consumers to receive a purchase via delivery or in a physical store). This *flexibility* aspect of convenience is a core distinction of omnichannel integration services that was overlooked in past studies on channel choice due to their overwhelming emphasis on consumers' choice between nonintegrated online and offline channels. Accordingly, we decompose the notion of convenience into its constituent dimensions of speed, effort, and flexibility to accommodate the unique contextual properties of omnichannel retail.

Risk Perceptions in Omnichannel Retail

Risk entails the range of problems that may arise during all phases of a transaction (Holloway and Beatty 2003). Past studies have produced diverse conceptions of risk, from a generic construct to a compilation of constituent dimensions to specific precarious events (Crespo et al. 2009; Featherman and Pavlou 2003; Glover and Benbasat 2010; Spiekermann

and Paraschiv 2002). The cause for such diverse conceptions is two-fold. One, due to the almost endless stream of plausible failures which might occur during transactions (Glover and Benbasat 2010), it is often impossible to comprehensively identify the entire spectrum of problems that could transpire. Two, transactional failures often incur losses on multiple fronts (e.g., financial, time, and effort) such that it is not uncommon for consumers to lack an intricate understanding of how exactly each failure might affect them (see Karwatzki et al. 2017; Slovic 1987). For the above reasons, rather than trying to derive an exhaustive list of problems which might transpire in omnichannel retail, we draw on Bauer's (1960) classical characterization of risk to distinguish between risk likelihood and severity as consumers' general assessment of the uncertainty associated with failed transactions and the gravity of the situation if and when failures were to occur (Dowling and Staelin 1994; Glover and Benbasat 2010; Gupta et al. 2004).

In the context of omnichannel retail, risk likelihood denotes the uncertainty associated with a select channel and consumers' perceived probability of a potential loss from transacting via this channel (Dowling 1986). Risk severity, on the other hand, quantifies the seriousness of the loss (Taylor 1974). In e-commerce or multichannel settings, it is common for risk likelihood and severity to be evaluated in tandem because channel offerings are static and consumers are unable to trade off one against another. However, in omnichannel retail, the distinction between risk likelihood and severity becomes particularly relevant. This is because consumers can now choose from a set of integrated channel options such that it is entirely plausible for omnichannel integration services to influence risk likelihood and severity independently. For example, an option to pick up the purchase in a physical store might signal a reduced likelihood of not receiving the purchased product, but it does not alter the severity of product misplacement if it were to occur. Thus, by adhering to this distinction, we can glean richer insights into whether distinct configurations of channel integration mitigate consumers' perception of risk likelihood and/or severity associated with their anticipation of possible negative events.

Differentiating between Transaction and Post-Transaction Convenience and Risk Perceptions

As underlined in the prescriptive research stream, consumers' channel preference is formulated on their combined evaluation of the support provided by a retailer for both transaction and post-transaction phases. In this sense, consumers' expectations of convenience and risk may not be constant across both phases (Seiders et al. 2007). For instance, even when a consumer views a store purchase to be convenient, it does not imply that he/she would not find store returns to be bothersome and inconvenient—or vice versa. Similarly, a consumer could be confident of receiving his/her purchase and still doubt the availability of recovery services at a later point in time, thereby rendering the post-transaction phase to be more risky than the preceding transaction itself (Petersen and Kumar 2015). In the same vein, we differentiate between transaction and post-transaction convenience and risk so as to disentangle consumers' receptivity towards omnichannel integration services for acquisition and recovery in shaping their channel choice.

Hypotheses Formulation

We advance a theoretical model that postulates omnichannel integration services for acquisition and recovery as antecedents affecting consumers' phase-specific evaluation of convenience and risk for online channels which, when combined, could shape their preference for the online channel as a transactional medium (see Figure 2).

The convenience of a transaction deals with the execution of the purchase (Seiders et al. 2007) and is determined by the characteristics of the transaction channel (Forman et al. 2009; Herhausen et al. 2015). Omnichannel integration services alter the characteristics of an online transaction by providing customers with desired services in both channels (Luo et al. 2016), thereby rendering the transaction to be much more convenient. Past studies have alluded to the effect of channel configurations on transaction convenience at an aggregate level (Gensler et al. 2012; Verhoef et al. 2007). However, omnichannel integration services for acquisition do not necessarily influence channel-specific components of speed, effort and flexibility convenience through the same mechanism. For instance, time lag in receiving purchased products has been hailed by scholars to be the reasoning behind consumers' preference for offline channels (Chiang et al. 2006; Noble et al. 2005; Verhoef et al. 2007). To eradicate the time lag attributed to online channels, retailers can provide omnichannel integration services for acquisition that caters for in-store pickup of purchased products. Such omnichannel integration services directly alter channel characteristics by reducing the time lag between execution and consumption, which in turn enhances transaction speed convenience. At the same time, these services also induce perceptions of flexibility convenience among consumers (Saeed et al. 2003) by offering a broader range of choices for the latter to gain instant gratification. Likewise, omnichannel services for acquisition increase effort convenience by enabling consumers to select the most effortless means of receiving purchased products, be it picking up the product from a store located at a site of convenience or coordinating the receipt of a parcel. Extending

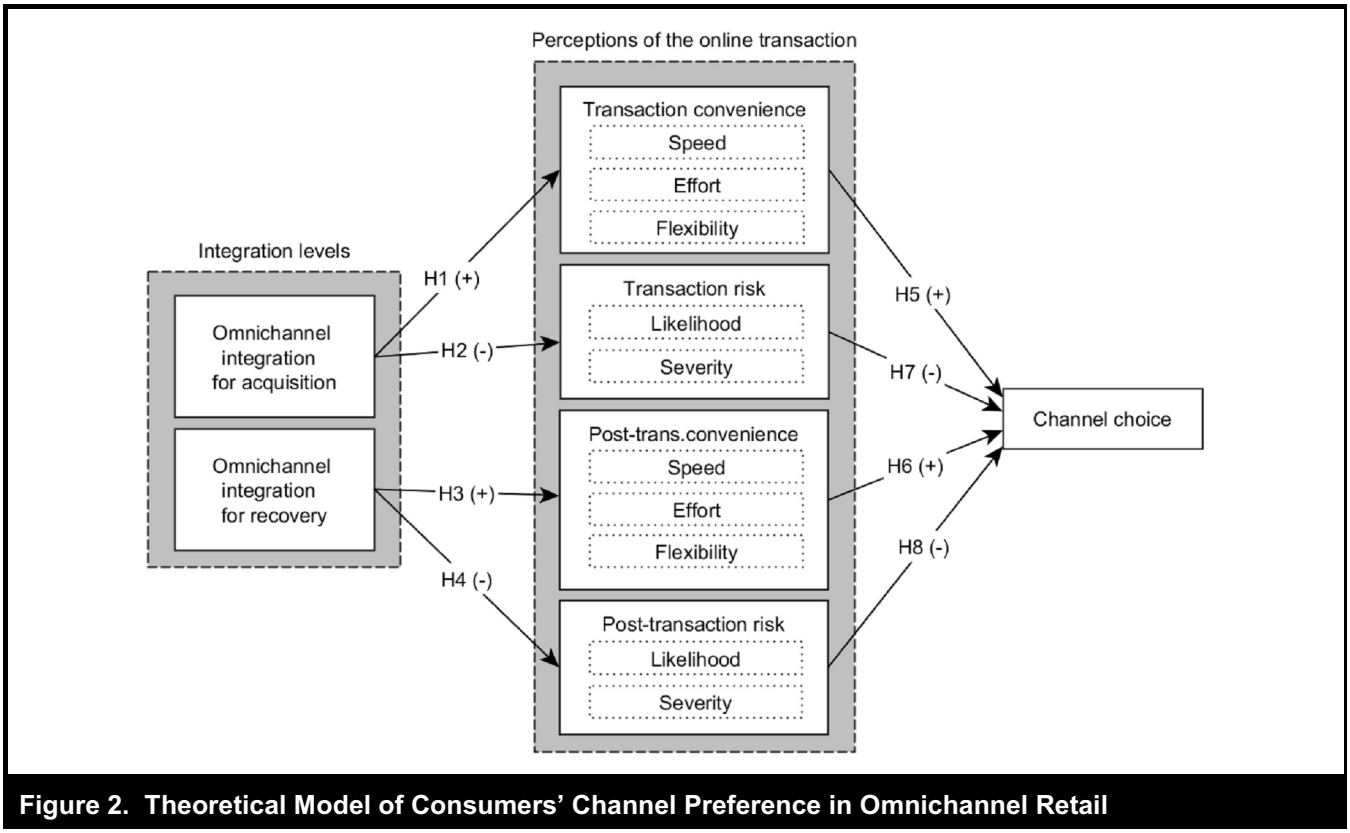

Figure 2. Theoretical Model of Consumers' Channel Preference in Omnichannel Retail

prior research on the impact of channel integration on transaction convenience to match the unique contextual properties of omnichannel retail, we hypothesize that omnichannel services for acquisition culminate in speed, effort, and flexibility convenience for consumers:

> ***Hypothesis 1***: Omnichannel services for acquisition increase consumers' evaluation of transaction (a) speed, (b) effort, and (c) flexibility convenience for an online transaction as compared to a multichannel service offering.

Transacting with an online store can culminate in unwanted outcomes. Transaction risk perceptions arise from consumers' expected likelihood of the occurrence of such outcomes and the severity of accompanying damages (Bauer 1960; Glover and Benbasat 2010). The physiological and temporal distance from transaction to gratification hence constitutes a primary challenge for e-retailers. An effective means of mitigating transactional uncertainties, as uncovered in past studies, is interpersonal contact (Grabner-Kräuter and Kaluscha 2003). While interpersonal contact is not easily accomplishable in multichannel retail, omnichannel integration services for acquisition deliver the prospect of a service personnel. If omnichannel integration services for acquisition were to be offered, consumers can be assured of receiving the product, thereby mitigating perceptions of risk likelihood. Moreover, the availability of omnichannel integration services for acquisition conveys a positive signal to consumers (Pavlou et al. 2007) about the willingness of retailers to resolve problems that stem from transacting online. This in turn should mitigate consumers' perceptions of risk severity. We therefore hypothesize that:

> ***Hypothesis 2***: Omnichannel services for acquisition decrease consumers' evaluation of transaction risk (a) likelihood and (b) severity for an online transaction as compared to a multichannel service offering.

While omnichannel integration services for acquisition relate to the transaction phase, omnichannel integration services for recovery affect the post-transaction phase. Upon purchasing a product online, consumers are primarily concerned with consuming the product in an expeditious fashion (Keeney 1999). Post-transaction interactions become necessary if things were to go wrong such as when a mismatch is detected between the actual product and its advertised specifications or the purchased product malfunctions. Post-transaction convenience refers to episodes of re-establishing contact with the

firm (Seiders et al. 2007) for the purpose of servicing, repairs, or returns after a transaction has been executed (Berry et al. 2002). We argue that omnichannel integration services for recovery could alter the convenience of post-transactional interactions in terms of speed, effort, and flexibility. By facilitating a personal exchange with the retailer, potential problems with the product can be identified immediately and possibly resolved without having to wait for the defective product to be shipped before the inquiry can be processed. Additionally, returns can be conducted without having to repackage the product, describe the defect, and send it in via regular mail. The preceding merits of omnichannel integration services for recovery align with past studies on channel choice that attest to discrepancies in the availability of post-transaction service offerings as salient drivers of consumers' channel preference (Chiang et al. 2006; Verhoef et al. 2007). In addition, the availability of omnichannel services for recovery lessens consumers' reliance on a single channel after purchase and permits them to choose among multiple paths based on their situational preferences in the future, thereby increasing their perceptions of flexibility in the post-transaction phase. We therefore hypothesize that:

> ***Hypothesis 3***: Omnichannel services for recovery increase consumers' evaluation of post-transaction (a) speed, (b) effort, and (c) flexibility convenience for an online transaction as compared to a multichannel service offering.

Similar to omnichannel integration services for acquisition, omnichannel integration services for recovery can alleviate consumers' uncertainty by offering a route for interpersonal contact after the online transaction (Grabner-Kräuter and Kaluscha 2003). Consumers' concerns can be mitigated whenever a service personnel is present in the store to offer assurances (Gefen and Straub 2004), thereby diminishing their risk perceptions (Mitchell and Boustani 1994). This expectation stems from the fact that questions can be answered through dialogue with the service personnel and having the product in hand (instead of remotely). Repairs can be commissioned with product defects being accurately conveyed to retailers face-to-face (instead of relying on written descriptions). In the same vein, returns can be handled directly by the service personnel with immediate guarantee that it will be accepted (instead of sending it in). Because the presence of a service personnel ensures that consumers' concerns can be addressed in a candid manner, their perceived likelihood of failure in the post-transaction phase should be reduced through the provision of omnichannel integration services for recovery:

> ***Hypothesis 4***: Omnichannel services for recovery decrease consumers' evaluation of post-transaction risk (a) likelihood and (b) severity for an online transaction as compared to a multichannel service offering.

A series of studies have confirmed the positive effects of convenience on consumer behavior, which include their intention to transact (Seiders et al. 2007; Szymanski and Hise 2000), store choice (Messinger and Narasimhan 1997), and switching among service providers (Keaveney 1995). Consistent with the abundance of empirical evidence within extant literature, we hypothesize that the presence of all three dimensions of transaction and post-transaction convenience in an online channel should increase the probability of consumers opting for the channel:

> ***Hypothesis 5***: Online transaction (a) speed, (b) effort, and (c) flexibility convenience increases the probability of consumers choosing the online channel for making purchases.

> ***Hypothesis 6***: Online post-transaction (a) speed, (b) effort, and (c) flexibility convenience increases the probability of consumers choosing the online channel for making purchases.

Risk perceptions have been touted as a major inhibitor of transactions (Cox and Rich 1964). As noted by Hofstede (1980), consumers try to avoid situations that are ambiguous and uncertain. This avoidance behavior resonates with the notion of perceived behavioral control espoused by Ajzen (1985, 1991). In the context of e-commerce, Pavlou (2003) remarked that consumers are more likely to transact if their uncertainties are reduced and they gain a feeling of being in control. Because consumers' choice of the transactional medium would ultimately dictate their accessibility to service offerings in the post-transaction phase, one can expect that their anticipations of negative events are not restricted to the transaction phase, but would also take into account the likelihood and severity of negative events that could transpire in the post-transaction phase. In fact, consumers' awareness of pursuable contingencies (or backup options) provided by multichannel retailers decreases the risk that a given channel may not fulfill their transactional needs (Bendoly et al. 2005). Because past studies in online retail have supplied ample evidence testifying to the negative relationship between consumers' risk perceptions and their subsequent intention to transact (Jarvenpaa et al. 2000; Pavlou 2003), we hypothesize that:

> ***Hypothesis 7***: Online transaction risk (a) likelihood and (b) severity decreases the probability of consumers choosing the online channel for making purchases.

Hypothesis 8: Online post-transaction risk (a) likelihood and (b) severity decrease the probability of consumers choosing the online channel for making purchases.

Methodology

We employ an experimental design to validate our theoretical model (see Figure 2). To begin, we inspected contemporary omnichannel integration services offered by seventy retailers (see Appendix C). We observed that a majority of retailers have implemented omnichannel integration services. To a large extent, the predominance of such services mirrors the pressure faced by brick-and-mortar retailers to differentiate themselves from market competitors by leveraging on pre-existing physical assets. Yet, at the same time, the inconsistent implementation of omnichannel integration services points to a pragmatic knowledge gap among retailers with regards to the effectiveness of various types of omnichannel integration services.

From the screening, it is clear that the acquisition process for multichannel retailers is facilitated through omnichannel integration services in the form of an option for in-store pickup after an online transaction. This service either allows consumers to pick up the purchased product immediately or compels them to wait until the product is ready for pickup. To gain deeper insights into those service configurations, we conducted a series of in-depth interviews with decision makers tasked with the implementation of omnichannel integration services. These decision-makers include the CTO of the largest electronic retailer in Germany, the store manager of the largest electronic store in Germany, CEOs and managing directors of three other major retailers, multichannel experts from two large strategy consultancies, as well as three experts from the largest provider of retail software infrastructure (see Table 1 for an overview). Interviewees disclosed a combination of strategic, operational, and technical considerations behind our observed configurations. As stated by the interviewees, delayed pickup, while technologically simplistic, demands adjustments to business processes (e.g., shipping from storage to shop if not in stock) and acts as a point of entry to omnichannel integration services. This delay in turn, can be eliminated through procedural refinements and technological advancements, leading to immediacy of pickup. But to achieve immediacy of pickup, information accuracy and timeliness becomes paramount so much so that tight coupling of transactional information between online and offline stores is mandatory. Conversely, omnichannel integration services for recovery typically assume the form of in-store options for addressing consumer inquiries or repairing/returning products even when the original transaction may have been conducted online. Omnichannel integration service for recovery however, imposes additional requirements in that the multichannel retailer must not only recruit a large number of personnel, with the ability to diagnose products, to be dispatched to each and every store, but it must also undertake significant investments in technology to align pricing, discount, and payment systems between online and offline stores.

Beyond the abovementioned observations, we also notice from our interviews and screening that multichannel retailing is becoming much more efficient by leveraging on operational and technological advances. Instead of standard two-day delivery, multichannel retailers can now offer same day delivery by investing in logistical enhancements without having to integrate their online and offline channels. In order to draw precise comparisons in performance between omnichannel integration services and their multichannel counterparts, we also take into account same day delivery as an optimized multichannel service offering in our empirical setting.

Experimental Design

Insights gained from our inspection were converted into 12 experimental treatment conditions that depict prominent instantiations of omnichannel integration services for acquisition and recovery, as embraced in practice. The combination from screening contemporary omnichannel integration services offered by seventy retailers in practice (see Appendix C) and insights gleaned from a series of interviews with decision-makers tasked with the configuration of multichannel and omnichannel setups lends credibility to the representativeness of our 12 scenarios as instantiations of multichannel and omnichannel configurations in reality (see Table 2).

To minimize confounding effects, product selection was undertaken with great care. We defined four focal criteria for the product that enable us to insulate the effects of omnichannel integration services by controlling for biases, which may be introduced unintentionally through certain product characteristics. While a diversity of product characteristics can affect context-specific channel preferences, the goal of the product selection process was to maintain the consistency of these effects across participants in order to isolate the influence of omnichannel integration services. Our selection criteria included considerations for cognitive purchase patterns (medium price range, rather long operating life, unlikely to culminate from situational impulse behavior), size and weight (to be movable by everyone), potential interest by all groups in target population (to reduce interest biases), as well

Table 1. Breakdown of Interviewees

#	Firm	Position/Responsibility	Channel Configuration
1	Largest Electronics Retailer in Germany	CTO	Omnichannel
2	Largest Electronics Retailer in Germany	Managing Director	Omnichannel
3	Large Electronic Retailer	Managing Director	Multichannel introducing omnichannel
4	Apparel Chain	CEO	Multichannel
5	Home and Kitchen Equipment	CEO	Offline only
			Responsibility
6	Largest Provider of Retail Software Infrastructure	Global Director Omnichannel	Omnichannel processes and scenarios
7	Largest Provider of Retail Software Infrastructure	Principal Consultant Retail	Market requirement elicitation for multi- and omnichannel solutions
8	Largest Provider of Retail Software Infrastructure	Solution Manager Retail	Implementation of multi- and omnichannel solutions
9	Strategy Consultancy A	Partner	Expert in channel management and omnichannel strategy and change management
10	Strategy Consultancy B	Consultant	Expert in omnichannel management

as detachment from product and technological uncertainty (such that internet skills are unrelated to the need for support). A series of in-depth interviews were initiated with colleagues and consumers to compile a shortlist of three product candidates. This list was then employed in a pretest to verify whether the products fulfill our selection criteria. On the basis of this pretest, we opted for a fully automated coffee machine as the product of choice for our experimental study (see Appendix D for details).

All scenarios began with the description of the purchase of a coffee machine at a local vendor to make the purchase situation more realistic and to generate a general inclination to transact with this retailer. Subsequently, participants were introduced to the retailer's online store, which housed one of 12 generic configurations that mirror multichannel service offerings as well as omnichannel integration services for acquisition and recovery in practice. Experimental manipulations were devised to be between subjects. Accordingly, every participant was exposed to only one of the 12 scenarios. The 12 levels of integration are depicted in Table 2, and, as an illustration, the presentation of experimental treatment condition #3 is shown in Appendix E. Manipulation checks ensured that the treatment conditions were successfully processed and interpreted by participants (see Appendix I for details).

Instrument Development

In addition to assessing the validity of the experimental manipulations, the survey measured a variety of additional variables. All of these are latent constructs measured by three or more reflective indicators. We adapt established scales wherever plausible and adhered to the steps advocated by MacKenzie et al. (2011) to refine and validate the measurement items for these constructs in our context. The scale refinement included a qualitative sorting procedure with six coders who sorted the individual items into classes (Moore and Benbasat 1991) and provided qualitative feedback. This is then followed by a quantitative pretest using 153 participants to check for internal consistency reliability, convergent validity, indicator reliability, and discriminant validity of the measurement model. A detailed description of the development of the measurement instrument is given in Appendix F. The final survey instrument comprises 56 items covering 18 latent variables. The measurement items together with their original sources appear in Appendix G. The final questionnaire consisted of 11 parts. An overview of the survey questionnaire is depicted in Appendix H.

Survey Administration

Data was gathered between October and November 2017. Participants were recruited from an online consumer panel through a professional market research firm that is certified according to ISO 9001 and ISO 26362. We chose a broad base consumer panel over a student sample because past studies have uncovered demographic composition to be a determinant of consumers' choice between online and offline channels (e.g., Ansari et al. 2008). Consequently, a homogenous sample might restrict our ability to derive more generalizable conclusions from the study. The sampling frame was

Table 2. Full-Factorial Experimental Design

#	Multichannel	Omnichannel	
	Delivery Option	Pickup in Store	Service & Returns in Store
1	2 days	No	No
2	2 days	Delayed	No
3	2 days	Immediately	No
4	2 days	No	Yes
5	2 days	Delayed	Yes
6	2 days	Immediately	Yes
7	Same day	No	No
8	Same day	Delayed	No
9	Same day	Immediately	No
10	Same day	No	Yes
11	Same day	Delayed	Yes
12	Same day	Immediately	Yes

restricted to internet users because this subgroup of the population contains potential buyers in the online channel. Consumers without internet connectivity are unlikely to be affected by omnichannel integration and are thus excluded as part of our sampling procedure. In total, responses from 778 participants constitute the data sample for our analysis. Consistent with random assignment, participants are distributed almost evenly across the 12 experimental treatment conditions (64 or 65 per cell). The sample is also representative of the population of German internet users by age and gender (see Appendix J for descriptive statistics).

One important confound of data collection via survey questionnaires is the issue of satisficing, which takes place "when optimally answering a survey question would require substantial cognitive effort, [and] respondents simply provide a satisfactory answer instead" (Krosnick 1991, p. 1). Satisficing can erode the validity of survey findings by biasing single-item results, inflating or suppressing scale reliability, as well as increasing associations among measures, all of which threaten the validity of empirical evidence, leading to lower statistical power and potentially erroneous conclusions (Barge and Gehlbach 2012). We have, therefore, undertaken extensive measures to successfully detect and prevent satisficing behaviors among participants (see Appendix I).

Finally, we ascertained whether nonresponse bias may have occurred. Nonresponse bias describes a situation in which participants who agree to participate in the study are systematically distinct from those who choose not to participate. Since no information about nonparticipants is forthcoming, we assume that late respondents are similar to nonrespondents and compare responses among early and late respondents (Armstrong and Overton 1977). Because we were unable to detect significant discrepancy in responses between early and late respondents, we can infer that nonresponse bias is unlikely to influence our results.

Analytical Results

Partial least squares structural equation modeling (PLS-SEM) was employed to evaluate the model in its entirety. Apart from the currently challenged conceptions of the advantages and disadvantages of PLS-SEM and covariance-based (CB) SEM in information systems (e.g., Aguirre-Urreta and Marakas 2014; Goodhue et al. 2012) and other research areas (e.g., McIntosh et al. 2014; Rönkkö and Evermann 2013), the choice for PLS-SEM is dictated by the nature of our empirical study. First, because exogenous variables correspond to experimental manipulations, they are dummy-coded. Though such variables can be easily incorporated in PLS-SEM (Henseler and Fassott 2010), the applicability of CB-SEM in modeling dummy variables is at least questionable (Gefen et al. 2011). Second, the goal of the study is to explore the impact of certain channel characteristics on consumers' perceptions and choices. Accordingly, "if one is … concerned more with identifying potential relationships than the magnitude of those relationships, then regression or PLS would be appropriate" (Goodhue et al. 2012, p. 999). For the above reasons, we deem PLS-SEM to be especially suited for testing our hypotheses. We also conducted an analysis of variance to cross-validate the impact of experimental manipulations on respondents' channel evaluations. The ensuing results are consistent with those of PLS and reported in Appendix K.

Validation of Measurement Model

Experimental manipulations were dummy-coded such that a score of one is awarded if a given channel configuration (i.e., delayed in-store pickup option is available; immediate in-store pickup is possible; service and return in store are offered; same day delivery is an option) were to be present and zero otherwise (Henseler and Fassott 2010). Conversely, the remaining constructs in our theoretical model are measured reflectively in that each indicator variable is devised to capture one unique facet of the latent construct under investigation (Jarvis et al. 2003).

The reliability and validity of our measurement model were assessed via PLS-SEM on the basis of three criteria (Henseler et al. 2009): internal consistency (or reliability) as well as convergent and discriminant validity. Because Henseler and Sarstedt (2013) supply convincing evidence that advises against reliance on goodness-of-fit indices for PLS, we assessed the measurement model based on well-accepted statistical parameters in the form of average variance extracted (AVE) and composite reliability (CR). Internal consistency was assessed based on CR scores. The CR score of all latent variables exceeds the advocated threshold of 0.7 (Nunnally and Bernstein 1994). Conversely, convergent validity is established by checking the AVE of latent variables and the reliability of indicators (Henseler et al. 2009). With the exception of a single indicator variable (RTC1 0.69) for retail store transaction convenience (RTC), factorial loadings for the remaining indicators are above the recommended threshold of 0.70, thereby suggesting that indicator variables share more than 50% of variance with their respective latent constructs. Since RTC is aimed at controlling for respondents' general evaluation of offline channels and the other statistics of this latent construct meet prescribed standards, its minor deviation from optimal threshold values for one of the statistical parameter (i.e., factorial loading) should not be of major concern. Disregarding the small deviation, we can deduce that there is sufficient convergent validity since the AVE for all latent variables satisfies the recommended threshold of 0.5. A summary of these statistics is given in Appendix L.

Discriminant validity of latent variables was assessed through three separate tests. First, the Fornell-Larcker criterion is applied. According to the rule, the square root of AVE for each latent construct must be greater than its correlation with any other construct (Fornell and Larcker 1981). This criterion was fulfilled for all latent construct. Second, the factorial loading of an indicator variable on its intended latent construct is higher than its cross-loading on other constructs, meaning that the indicator shares more variance with its latent construct than with any other construct. Finally, we approximated the heterotrait-monotrait ratio of correlations (HTMT) (Henseler et al. 2015). Despite employing an identical measurement model to assess speed and effort convenience during transaction and post-transaction phases, correlations between speed and effort differ substantially between the two phases ($r_{Transaction} = .28$ versus $r_{Post\text{-}transaction} = .79$). This implies that, rather than an operationalization issue, respondents tend to treat speed and effort as a whole in the post-transaction phase. Indeed, the heterotrait-monotrait ratio of correlations is .87 for the two constructs and lower for all other pairs of constructs. Since the HTMT ratio falls below the threshold of .9, we are confident of the discriminant validity of our latent constructs (Henseler et al. 2015). Details on the correlations among latent constructs as well as the factorial and cross-loadings of indicator variables are summarized in Appendices M and N. Because survey responses were solicited via a single measurement technique, procedural and statistical remedies to minimize *common method bias* (CMB) were also undertaken. Analytical results indicate that CMB does not threaten the validity of our findings (Appendix O).

Validation of Structural Model

Given the validity of our measurement model, we can turn to the analysis of our structural model. To begin, we calculate the variance inflation factor (VIF) of explanatory constructs to verify how much variance of the regression coefficient is inflated due to collinearity (Mooi and Sarstedt 2011). The VIF for all explanatory constructs was far below the advocated threshold of 5, implying that multicollinearity is unlikely to bias the path estimates. Next, we computed the path coefficients for relationships hypothesized in our theoretical model and assessed their statistical significance based on 5,000 bootstrapping samples with 778 cases each.

Inspired by practice, we instantiated omnichannel integration services for acquisition in two ways: as delayed pickup (i.e., 2 days) or as immediate pickup. To test Hypotheses 1 and 2, we assess the effects of omnichannel integration services for acquisition on consumers' evaluations of convenience and risk in the transaction phase when compared to that of conventional (i.e., 2-day delivery) and optimized (i.e., same day delivery) multichannel service offerings. Empirical evidence partially supports Hypothesis 1a in that omnichannel integration services for acquisition exerts a stronger effect on transaction speed convenience as compared to multichannel service offerings. Particularly, we discovered that transaction speed convenience is bolstered by immediate ($\beta = .10$, $p < .001$) but not delayed ($\beta = .01$, $p > .05$) pickup. Likewise, optimized multichannel service offering (i.e., same day delivery) also increases transaction speed convenience ($\beta = .47$, $p < .001$) relative to its conventional counterpart. Since both multichannel service offerings and omnichannel integra-

Table 3. Comparisons Among Distinct Configurations of Channel Integration in the Transaction Phase (Dependent Variable: Transaction Speed Convenience)

A \ B	Multichannel	Omnichannel with Delayed Pickup	Omnichannel with Immediate Pickup	Multichannel with Same Day Delivery	Omnichannel with Delayed Pickup and Same Day Delivery	Omnichannel with Immediate Pickup and Same Day Delivery
Multichannel	–	A = B (-.053)	**B > A (-.506*)**	**B > A (-1.139*)**	**B > A (-1.131*)**	**B > A (-1.04*)**
Omnichannel with Delayed Pickup	A = B (.053)	–	**B > A (-.453*)**	**B > A (-1.086*)**	**B > A (-1.078*)**	**B > A (-.987*)**
Omnichannel with Immediate Pickup	**A > B (.506*)**	**A > B (.453*)**	–	**B > A (-.633*)**	**B > A (-.625*)**	**B > A (-.534*)**
Multichannel with Same Day Delivery	**A > B (1.139*)**	**A > B (1.086*)**	**A > B (.633*)**	–	A = B (.008)	A = B (.099)
Omnichannel with Delayed Pickup and Same Day Delivery	**A > B (1.131*)**	**A > B (1.078*)**	**A > B (.625*)**	**A = B (-.008)**	–	A = B (.091)
Omnichannel with Immediate Pickup and Same Day Delivery	**A > B (1.04*)**	**A > B (.987*)**	**A > B (.534*)**	**A = B (-.099)**	A = B (-.091)	–

Note: Number in brackets denotes differences among treatment conditions, positive difference indicates that row configuration is better than column configuration with respect to **speed** convenience and vice versa.
*$p < 0.05$; not significant otherwise.

tion services reinforce transaction speed convenience, Dunnett's T3 *post hoc* test[2] was conducted to contrast the relative impact of distinct configurations of channel integration on transaction speed convenience (see Table 3). Results indicate that omnichannel integration with immediate pickup is generally superior to multichannel service offerings. However, if multichannel retailers were to offer same day delivery, transaction speed convenience for such a setup would be higher than that of all other configurations of channel integration. In short, omnichannel integration services for acquisition culminate in transaction speed convenience, especially when it caters for immediate pickup. But at the same time, optimized multichannel service offering in the form of same day delivery can match omnichannel integration services for acquisition in terms of transaction speed convenience, even when immediate pickup is offered. Hypothesis 1a is hence partially supported.

Contrary to our expectation, there is no empirical support for Hypothesis 1b. Neither omnichannel integration services for acquisition (delayed pickup: $\beta = -.04$, $p > .05$; immediate pickup: $\beta = -.02$, $p > .05$) nor optimization to multichannel service offerings (same day delivery: $\beta = .03$, $p > .05$) translate into lesser transaction effort for respondents.

Hypothesis 1c states that omnichannel services for acquisition increase transaction flexibility as opposed to multichannel service offerings and is corroborated by our empirical evidence. We found that transaction flexibility convenience can be boosted by both delayed ($\beta = .35$, $p < .001$) and immediate ($\beta = .35$, $p < .001$) pickup. Because optimized multichannel service offering (i.e., same day delivery) also increases flexibility convenience ($\beta = .12$, $p < .001$), we conducted Dunnett's T3 *post hoc* test to establish the relative impact of dis-

[2]Although we only report comparison test results for those treatment conditions where multichannel service offerings and omnichannel integration services exert a significant influence on consumers' evaluations, we performed comparisons for all transactional perceptions and as expected, results did not yield significant differences.

Table 4. Comparison among Distinct Configurations of Channel Integration in the Transaction Phase (Dependent Variable: Transaction Flexibility Convenience)

A \ B	Multichannel	Omnichannel with Delayed Pickup	Omnichannel with Immediate Pickup	Multichannel with Same Day Delivery	Omnichannel with Delayed pickup and Same Day Delivery	Omnichannel with Immediate Pickup and Same Day Delivery
Multichannel	–	B > A (-.882*)	B > A (-.963*)	B > A (-.471*)	B > A (-1.076*)	B > A (-.964*)
Omnichannel with Delayed Pickup	**A > B (.882*)**	–	A = B (-.081)	**A > B (.412*)**	A = B (-.193)	A = B (-.081)
Omnichannel with Immediate Pickup	**A > B (.963*)**	A = B (.081)	–	**A > B (.492*)**	A = B (-.112)	A = B (.000)
Multichannel with Same Day Delivery	**A > B (.471*)**	**B > A (-.412*)**	**B > A (-.492*)**	–	**B > A (-.605*)**	**B > A (-.493*)**
Omnichannel with Delayed Pickup and Same Day Delivery	**A > B (1.076*)**	A = B (.193)	A = B (.112)	**A > B (.605*)**	–	A = B (.112)
Omnichannel with Immediate Pickup and Same Day Delivery	**A > B (.964*)**	A = B (.081)	A = B (.000)	**A > B (.493*)**	A = B (-.112)	–

Note: Number in brackets denotes differences among treatment conditions, positive difference indicates that row configuration is better than column configuration with respect to **flexibility** convenience and vice versa.
*$p < 0.05$; not significant otherwise.

tinct configurations of channel integration on transaction flexibility convenience (see Table 4). Results indicate that omnichannel integration services for acquisition deliver greater transaction flexibility convenience than multichannel service offerings, thereby lending support to Hypothesis 1c.

Risk likelihood, on the other hand, cannot be reduced through omnichannel integration services for acquisition (delayed pickup: $\beta = -.007, p > .05$; immediate pickup: $\beta = -.002, p < .001$). Consequently, Hypothesis 2a is not supported. Incidentally, same day delivery also does not lead to a reduction in transaction risk likelihood ($\beta = .035, p > .05$). In contrast, immediate pickup reduces transaction risk severity ($\beta = -.13, p < .001$) when compared to multichannel service offering while delayed pickup has no effect on the latter ($\beta = -.023, p > .05$). Similarly, optimized multichannel service offering (i.e., same day delivery) does not affect risk severity ($\beta = -0.022, p > .05$). In this sense, Hypothesis 2b is partially supported.

As for the impact of omnichannel integration services for recovery, we compare the option of servicing or returning the product in-store after an online transaction against a multichannel retailer whereby products must be sent in via mail. We noticed that omnichannel integration services for recovery significantly improve post-transaction convenience in terms of speed ($\beta = .46, p < .001$), effort ($\beta = .45, p < .001$), and flexibility ($\beta = .73, p < .001$), thereby substantiating Hypotheses 3a–c. Likewise, Hypothesis 4 is corroborated, meaning that in-store servicing and return reduces both post-transaction risk likelihood (H4a, $\beta = -.27, p < .001$) and severity (H4b, $\beta = -.26, p < .001$).

There is also empirical support for the impact of the three transaction convenience dimensions on channel choice probability. As hypothesized, transaction speed (H5a, $\beta = .15, p < .001$), effort (H5b, $\beta = .20, p < .001$), and flexibility (H5c, $\beta = .08, p < .01$) convenience significantly increase the probability of respondents choosing the online channel. In the

transaction phase, it is not risk likelihood that determines channel choice (H7a, $\beta = -.06$, $p > .05$), but rather the severity of the risk that prohibits respondents from opting for the online channel (H7b, $\beta = -.10$, $p < .05$). In the post-transaction phase, we witnessed mixed support for the influence of convenience on channel choice. While post-transaction speed convenience drives the selection of the online channel (H6a, $\beta = .09$, $p < .05$), the effects of effort (H6b, $\beta = .07$, $p > .05$) and flexibility (H6c, $\beta = .01$, $p > .05$) convenience on channel choice are not statistically significant. Interestingly, there is no empirical support for the hypothesized impact of post-transaction risks: neither post-transaction risk likelihood (H8a, $\beta = .003$, $p > .05$) nor post-transaction risk severity (H8b, $\beta = -.04$, $p > .05$) has an effect on channel choice.

Finally, we incorporated a series of control variables to decrease unexplained variance and account for alternative explanations. Specifically, we control for potential confounds that could be attributed to demographical (i.e., age and gender), environmental (i.e., distance to store), experiential (i.e., online shopping experience), personal (i.e., risk propensity), and transactional (i.e., product uncertainty) variations. A standard approach is to control for the effects of these potential confounds on respondents' channel evaluations and channel choice probability in order to ensure that our conclusions are not misguided due to the omission of focal variables.

Furthermore, for choice probability, taking into consideration the alternative channel is vital (Montoya-Weiss et al. 2003): a consumer might (not) choose the online channel because he/she deems the offline alternative to be extremely unattractive (attractive). We, therefore, include respondents' evaluations of the offline channel in our structural model. After controlling for the impact of potential confounds (i.e., age, gender, distance to store, online shopping experience, risk propensity, product uncertainty, as well as offline transaction and post-transaction convenience and risk), the aforementioned effects for our theoretical model still hold (see Table 5 and Table 6), which in turn testifies to the robustness of our empirical findings.

The structural model explains between 53.5% (post-transaction flexibility convenience) and 9.4% (transaction risk severity) of the variance for channel evaluations. The model also accounts for 33.4% of the variance for channel choice probability. Effect sizes (f^2) for the impact of channel integration on channel evaluations were medium for in-store servicing and return on post-transaction speed (i.e., $f^2_{(OPCS)} = .28$) and effort (i.e., $f^2_{(OPCE)} = .26$) convenience, and large for post-transaction flexibility convenience (i.e., $f^2_{(OPCF)} = 1.1$). We detected small effect sizes for the impact of immediate pickup on transaction speed (i.e., $f^2_{(OTCS)} = .01$) and flexibility (i.e., $f^2_{(OTCF)} = .11$) convenience as well as on transaction risk severity (i.e., $f^2_{(OTRS)} = .01$). Likewise, the effect size for the impact of delayed pickup on transaction flexibility convenience (i.e., $f^2_{(OTCF)} = .01$) is small as well. Same day delivery exhibits medium effects on transaction speed convenience (i.e., $f^2_{(OTCF)} = .29$) and small effects on transaction flexibility convenience (i.e., $f^2_{(OTCF)} = .02$). Considering the huge number of control variables, these effect sizes were not unexpected.

As a robustness check, we conducted logistic regression using a binary variable that represents strong preference for the online or the offline channel. The alternative model specification affirms the preceding results (see Appendix P). We also performed mediation analysis to assess the effects of channel integration on channel choice via consumer perceptions. Results of the bootstrapping test by Zhao et al. (2010) indicate an indirect-only mediation for the paths from same day delivery and pickup (immediate) via transaction speed convenience to choice probability and for pickup (immediate) via transaction risk severity to choice probability. Results also unveiled an indirect-only mediation from same day delivery via online transaction flexibility convenience to choice probability and from in-store servicing and return via online post-transaction speed convenience to choice probability. Amongst all plausible mediating relationships, indirect-only mediation gives the strongest indication that the relationship is consistent with our theoretical model (Zhao et al. 2010). No mediating relationship could be discerned for the paths from delayed and immediate pickup via transaction flexibility convenience to choice probability. A full overview of the results from the mediation analysis is given in Appendix Q.

In total, our study corroborates 11 of our 20 hypotheses while providing partial support for two others. For the seven unsupported hypotheses, four pertains to consumers' evaluations of post-transaction convenience and risk on channel choice probability. An overview of our hypotheses testing is summarized in Table 7.

Discussion

Brick-and-mortal retailers, when expanding to the online channel, can pursue either a *multichannel* strategy by optimizing the online channel without replacing legacy systems and transforming entrenched business processes in their offline channels or an *omnichannel* strategy by investing in channel integration to harness cross-channel synergies. By constructing and validating a research model that elucidates the conditions under which omnichannel retail may hold a distinct advantage over its multichannel counterpart in driving

Table 5. Analytical Results of Structural Model: Impact on Channel Evaluations

Purchasing Phase	Transaction Phase					Post-Transaction Phase				
	Convenience			Risk		Convenience			Risk	
Perceptions	OTCS	OTCE	OTCF	OTRS	OTRL	OPCS	OPCE	OPCF	ORRS	OPRL
R^2	26.2%	11.5%	16.4%	9.4%	9.6%	23.3%	22.1%	53.5%	12.0%	15.4%
Adjusted R^2	25.6%	10.7%	15.7%	8.3%	8.6%	22.8%	21.6%	53.3%	11.2%	14.7%
Hypothesized Relationships										
Pickup in Store (2 days)	.01	-.04	.35***	-.02	-.01					
Pickup in Store (immediate)	.10**	-.02	.35***	-.13***	-.002					
Service & Return in Store						.46***	.45***	.73***	-.26***	-.27***
Same Day Delivery	.47***	.03	.12***	-.02	.04					
Controls and Covariates										
Distance to Store	.08**	.02	.01	-.04	.01	-.03	-.03	.02	.01	.004
Product Uncertainty				.11**	.14***				.10**	.15***
Risk Propensity				.09*	.11**				.05	.11**
Online Shopping Experience	.12***	.34***	.18***	-.17***	-.18***	.12***	.11***	.07***	-.09*	-.17***
Age	.16***	.06	.06	-.15***	-.12***	.08**	.08**	.03	-.15***	-.10**
Gender	-.07*	-.10**	-.03	-.06*	-.04	.04	.02	.04	-.10**	.04

Note: Table shows standardized path coefficients.
R^2: Total variance explained; Online Transaction Convenience: Speed (OTCS), Effort (OTCE), Flexibility (OTCF); Online Transaction Risk: Severity (OTRS), Likelihood (OTRL), Online Post-Transaction Convenience: Speed (OPCS), Effort (OPCE), Flexibility (OPCF); Online Post-Transaction Risk: Severity (OPRS), Likelihood (OPRL).
*p < 0.05; **p < 0.01; ***p < 0.001; not significant otherwise.

online consumer behavior, findings from this study raise several points of interest.

First, our contextualized theorization of convenience and risk to omnichannel environments proved invaluable for comprehending consumers' channel evaluations and choices. We discover that speedy, effortless, and flexible transactions constitute salient drivers of consumers' channel preference. In contrast to linear transactions within a single channel which can exhibit varying levels of convenience with regards to transactional speed and effort (Gensler et al. 2012; Verhoef et al. 2007), our findings demonstrate that an online channel, which grants flexibility through the provision of omnichannel integration services, would be favored by consumers. More critically, we detect that distinct configurations of omnichannel retail affect select dimensions of convenience rather than their composite, thereby underscoring the conceptual value of decomposing convenience into its constituent dimensions of speed, effort, and flexibility in the context of omnichannel retail.

In the same vein, even though past studies have acknowledged risk as a prominent driver of consumers' channel preference (Gensler et al. 2012; Gupta et al. 2004), delineating between the likelihood and severity of projected losses yields deeper insights into aspects of risk that govern consumers' channel decisions. Contrary to our expectations, the negative influence of consumers' risk perceptions during the transaction phase relates to the severity of adverse consequences arising from anticipated service failures rather than the likelihood of occurrence for such failures. One explanation for this finding could be that failures are inevitable during transactions and not all failures are within the control of retailers (Holloway and Beatty 2003; Tan et al. 2016). From consumers' standpoint, it is hence acceptable that problems occur even though their channel preference is likely to be shaped by the gravity of projected losses, which could arise from transacting online.

Second, our findings not only reveal that consumers' evaluations of convenience and/or risk in both transaction- and post-transaction phases impact their channel choice in omnichannel retail, but they also uncover that the importance of convenience and risk dimensions differs between the two phases. Although prior research on multichannel retail tend to treat consumers' evaluation of transaction and post-transaction stages as a whole (Choudhury and Karahanna

Table 6. Analytical Results of Structural Model: Impact on Choice Probability

Variable	Channel Choice Probability
R^2 (Adjusted R^2)	**34.3%** (32.6%)
Hypothesized Relationships	
Online Transaction Convenience: Speed	**.15*** **
Online Transaction Convenience: Effort	**.20*** **
Online Transaction Convenience: Flexibility	**.08***
Online Transaction Risk: Severity	**-.10***
Online Transaction Risk: Likelihood	**-.06**
Online Post-Transaction Convenience: Speed	**.09***
Online Post-Transaction Convenience: Effort	**.07**
Online Post-Transaction Convenience: Flexibility	**.01**
Online Post-Transaction Risk: Severity	**-.04**
Online Post-Transaction Risk: Likelihood	**.003**
Controls and Covariates	
Retail Store Transaction Convenience	-.22***
Retail Store Transaction Risk	.11**
Retail Store Post-Transaction Convenience	-.18***
Retail Store Post-Transaction Risk	.02
Product Uncertainty	.03
Risk Propensity	.07*
Online Shopping Experience	.11***
Distance to Store	.06*
Age	-.07*
Gender	.02

Note: Table shows standardized path coefficients for hypothesized relationships *(shown in bold)* and control paths *(not in bold)*.
R^2: total variance explained.
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; not significant otherwise.

2008), our context-specific theorization of convenience and risk points to prospects of fast recovery as the sole convenience dimension in the post-transaction phase shaping consumers' channel preference. Conversely, prospects of effort and flexibility convenience in the post-transaction phase exert little influence on consumers' channel preference during purchases. This implies that consumers, when encountering failures, are primarily concerned with quick recovery (Mattila and Wirtz 2004; Smith et al. 1999) so much so that other aspects of convenience are likely to take a backseat under such circumstances. Furthermore, by differentiating between transaction and post-transaction phases, it is discernible that only risks in the transaction phase matter whereas projections of future losses in the post-transaction phase do not play a role in shaping consumers' channel preference. This departs from previous work that alludes to risk considerations as a salient driver behind retailers' decision to have dedicated customer service channels in the post-transaction phase (Gensler et al. 2012). This diminished effect of post-transaction risks when deciding for a bundle of options during transaction and post-transaction phases may be caused by the time lag between acquisition and recovery as well as consumers' psychological discounting of future losses (Kahneman and Tversky 1979).

Third, as exposed by our empirical evidence, distinguishing between omnichannel integration services for acquisition and recovery is imperative because they differ vastly in their appeal and impact. In this sense, this study supplies indirect evidence that casts doubt on the adequacy of examining omnichannel integration services at an aggregate level (Bendoly et al. 2005; Herhausen et al. 2015). Depending on their configuration, we notice that omnichannel integration services for acquisition can bolster consumers' evaluations of speed and flexibility convenience, but surprisingly, those same services do not affect effort convenience. A rationale for this counterintuitive finding could be that both multichannel and

Table 7. Overview of Hypotheses Testing

#	Hypothesized Relationship	Support	Comment
H1a	Omnichannel Services for Acquisition ➔ Transaction Speed Convenience[+]	Partially supported	Only when implemented as immediate pickup; same day delivery improves transactional speed convenience further
H1b	Omnichannel Services for Acquisition ➔ Transaction Effort Convenience[+]	Not supported	None of the omnichannel or multichannel improvements influence effort
H1c	Omnichannel Services for Acquisition ➔ Transaction Flexibility Convenience[+]	Supported	Omnichannel services for acquisition provide higher transactional flexibility as compared to multichannel service configurations
H2a	Omnichannel Services for Acquisition ➔ Transaction Risk Likelihood[+]	Not supported	None of the omnichannel or multichannel improvements influence risk likelihood
H2b	Omnichannel Services for Acquisition ➔ Transaction Risk Severity[+]	Partially supported	Only if implemented as immediate pickup
H3a	Omnichannel Services for Recovery ➔ Post-Transaction Speed Convenience[+]	Supported	
H3b	Omnichannel Services for Recovery ➔ Post-Transaction Effort Convenience[+]	Supported	
H3c	Omnichannel Services for Recovery ➔ Post-Transaction Flexibility Convenience[+]	Supported	
H4a	Omnichannel Services for Recovery ➔ Post-Transaction Risk Likelihood[+]	Supported	
H4b	Omnichannel Services for Recovery ➔ Post-Transaction Risk Severity[+]	Supported	
H5a	Online Transaction Speed Convenience ➔ Online Channel Choice Probability	Supported	All three dimensions of transaction convenience influence online channel choice probability
H5b	Online Transaction Effort Convenience ➔ Online Channel Choice Probability	Supported	
H5c	Online Transaction Flexibility Convenience ➔ Online Channel Choice Probability	Supported	
H6a	Online Post-Transaction Speed Convenience ➔ Online Channel Choice Probability	Supported	Prospect of speed convenience in post-transaction interactions is the main driver of online channel choice probability
H6b	Online Post-Transaction Effort Convenience ➔ Online Channel Choice Probability	Not supported	
H6c	Online Post-Transaction Flexibility Convenience ➔ Online Channel Choice Probability	Not supported	
H7a	Online Transaction Risk Likelihood ➔ Online Channel Choice Probability	Not supported	It is the severity of issues that could occur during the transaction rather than their likelihood that drives online channel choice probability
H7b	Online Transaction Risk Severity ➔ Online Channel Choice Probability	Supported	
H8a	Online Post-Transaction Risk Likelihood ➔ Online Channel Choice Probability	Not supported	Prospects of risks during post-transaction interactions do not drive online channel choice probability
H8b	Online Post-Transaction Risk Severity ➔ Online Channel Choice Probability	Not supported	

Note: [+]H1 – H4 refer to relative perception compared to a multichannel online offering without integration.

omnichannel transactions necessitate active involvement on the part of consumers. Whereas consumers will have to wait at home for the product to be delivered in the context of multichannel retail, they will have to travel to the physical store to pick up the package when purchasing from omnichannel retailers.

Likewise, the way omnichannel integration services are configured would drive consumers' evaluation of risk differently. We anticipate that offering omnichannel services for acquisition would transmit a positive signal (Pavlou et al. 2007) because consumers can physically receive the product and certify that it is fully functional in the presence of a human representative from the retailer. Yet, deviating from our expectation, we unearth evidence demonstrating that omnichannel services for acquisition can only reduce the severity of anticipated failures if they eradicate the time lag between execution and consumption. One explanation for this finding could be attributed to consumers' lack of understanding for the operational impediments underlying delayed gratification (Luo et al. 2016), thereby giving rise to unfounded skepticism that counteracts personal contact. In addition, intense competition in the e-commerce space could fuel fears over business continuation so much so that consumers' perceptions of risks are unlikely to be reduced when transaction and gratification are temporally separated. Accordingly, consumers expect omnichannel integration services to facilitate rapid recovery and minimize losses in the event of failures.

Finally, our findings yield insights into the value of omnichannel integration services as opposed to mere enhancements to the online channel for multichannel retailers. It is deducible from our empirical evidence that multichannel service offerings, once fully optimized (i.e., same day delivery), could be a surrogate for omnichannel services for acquisition when one is worried about the speed of the transaction, but at the same time, the latter holds an unparalleled advantage when it comes to the reinforcement of transactional flexibility or the suppression of risk severity.

Implications for Theory

This study ascertains the boundary conditions under which omnichannel retail prevails over its multichannel counterpart in steering online consumer behavior. Because prior research treats omnichannel integration services as a meta-concept without differentiating among the broad spectrum of integration options (Bendoly et al. 2005; Herhausen et al. 2015; Oh et al. 2012), this study is the first to distinguish omnichannel integration services for acquisition from those for recovery. Specifically, we discover that multichannel and omnichannel retail affect consumers' perceptions of convenience and risk differently across both transaction and post-transaction phases and that consumers take prospective post-transaction interactions into account when forming their channel preference in multichannel environments. As a consequence, this study contributes to theory on three fronts.

First, we advance the diagnostic research stream by developing a channel evaluation model exclusive to omnichannel retail. In so doing, we not only identify convenience and risk perceptions as major evaluative criteria driving consumers' channel choice in omnichannel retail, but we also contextualize our theorization of the two concepts to omnichannel retail, an approach often neglected in prior research (see Appendix B). Specifically, we delineate convenience, which has been touted by scholars to be an influential factor in shaping consumers' channel preference, into its three constituent dimensions of speed, effort, and flexibility. At the same time, we differentiate risk likelihood from its severity as predictors to glean richer insights into the potential risk-reducing effect of omnichannel integration services and their impact on channel choice. In subscribing to a finer-grained theorization of convenience and risk, we extend previous work by illuminating that not all convenience and risk dimensions are equally instrumental in shaping consumers' channel preference. Apart from reinforcing prior research by attesting to the impact of convenience on channel preference (e.g., Choudhury and Karahanna 2008; Gensler et al. 2012; Verhoef et al. 2007), our findings also testify to the significance of flexibility as an underexplored convenience dimension in omnichannel retail whereby consumers can choose among channel spanning services offered by a retailer in both transaction and post-transaction phases (see Banerjee 2014; Saeed et al. 2003). Furthermore, we depart from extant literature by disputing the commonly-held assumption that speed and effort convenience are intricately connected (e.g., Gensler et al. 2012; Seiders et al. 2007; Verhoef et al. 2007). Disentangling speed convenience from that of effort allows us to gain an in-depth appreciation of consumers' interactions with digital channels. For instance, our findings indicate that post-transaction speed convenience exerts a significant effect on consumers' channel preference, while post-transaction effort convenience does not. This in turn lends credibility to our theoretical separation of speed and effort convenience in the context of omnichannel retail. Likewise, our empirical evidence suggests that only risk severity in the transaction phase influences consumers' channel preference whereas risk likelihood and post-transaction risks matter little in this channel choice setting.

Second, we enrich the prescriptive research stream by dissecting how complementarities among channels can manifest in multichannel and omnichannel service offerings across transaction and post-transaction phases. To date, the prescrip-

tive research stream has mainly investigated issues of complementarities and substitutability across channels for pre-transaction and transaction phases (e.g., Chiu et al. 2011; Pavlou and Fygenson 2006; Verhoef et al. 2007). In this sense, our findings supplement past studies on the complexity of omnichannel integration (Lee et al. 2013; Yan and Pei 2011) by shedding light on how integrating channels can lead to synergies across transaction and post-transaction phases. By contrasting distinct configurations of channel integration against varied optimization of the online channel in both transaction and post-transaction phases, we draw a more sophisticated picture of channel substitutability than what has been painted in prior research. For instance, our comparison reveals that immediate delivery outperforms optimized multichannel service offering (i.e., same day delivery) in terms of transactional flexibility and reduced risk severity. Nevertheless, the speed of having same day in-store pickup can be substituted by optimizing the online channel.

Last but not least, by merging diagnostic and prescriptive research streams within extant literature on multichannel and omnichannel retail, this study not only proffers a holistic view of how synergies between online and offline channels drive consumers' channel evaluations and decisions, but it also illustrates how such complementarities can be realized through channel integration across transactional phases. By investigating how distinct configurations of multichannel service configurations and omnichannel integration services alter consumers' channel evaluations, which in turn shapes their preferred choice of transactional mediums, we show: (1) that the manner in which channel integration is realized will dictate whether omnichannel retail is able to triumph over its multichannel counterpart, and (2) how technological advances could amplify the ability of multichannel retailers to emulate the benefits of omnichannel integration services through alternate logistical investments such as offering same day delivery.

On the other hand, with channel integration, consumers no longer have to choose between either online or offline channels. Instead, they have the flexibility of selecting retailers with distinct configurations of channel integration that match their preference. Similarly, retailers' channel strategies are no longer confined to being online, offline, or multichannel: retailers would have to consider a continuum of viable channel integration options. From our study, it is evident that previous conceptions of multichannel retail are insufficient in explaining consumers' channel behavior since technological advancements have moved retailing beyond the functioning of online and offline channels as independent silos. Multichannel or omnichannel research must thus reflect the increased complexity of retailers' channel strategies and revisit the applicability of established theories in accommodating this complexity. Our refined conceptualization of retailers' channel strategies as a continuum is depicted in Figure 3.

Implications for Practice

From a practical viewpoint, our findings can be harnessed by multichannel and omnichannel retailers to discern omnichannel integration services that are worthy of investment. In comparison to other channel differentiators (e.g., branding and pricing) which can be easily replicated by market rivals, the presence or absence of omnichannel integration services can alter the competitive dynamics among multichannel, omnichannel, and pure online retailers. Due to intense rivalry among e-retailers, the ability to address failures, which cannot be resolved via online channels alone, constitutes a sustainable competitive advantage in the digital marketplace.

Our findings can aid retailers to make informed decisions about the value of omnichannel integration services and investments in multichannel service offerings in accordance with their customer base and product portfolio. If product offerings of a retailer are extremely valuable and/or vulnerable to damage (e.g., glass ornaments), offering an immediate pickup option can reduce the psychological burden that might otherwise deter consumers from transacting with the retailer. Conversely, if convenience is desired, the provision of in-store pickup or servicing and return options can drastically increase the value that consumers attach to transactions with retailers offering such omnichannel integration services. But at the same time, our findings indicate that technological advancements in the likes of same day delivery could permit pure online or multichannel retailers to emulate the benefits of omnichannel integration services by improving their multichannel service offerings without investing in channel integration (Manjoo 2012) and in turn, realize select aspects of convenience (e.g., speed).

Moreover, retailers can harness our findings to prioritize and allocate resources when enacting channel strategies, be it the implementation of advanced multichannel service configurations or an investment in omnichannel integration services. Particularly, given the merits of omnichannel integration services established in our study, small- and medium-sized retailers, which do not possess adequate resources to operate competitive online channels, can perhaps collaborate with pure online retailers to realize omnichannel integration through interorganizational cooperation. Under such collaborative arrangements, pure online retailers could benefit from the physical infrastructure of the small or medium retailer and realize omnichannel integration services without having to invest in own physical infrastructure. Likewise, small- or

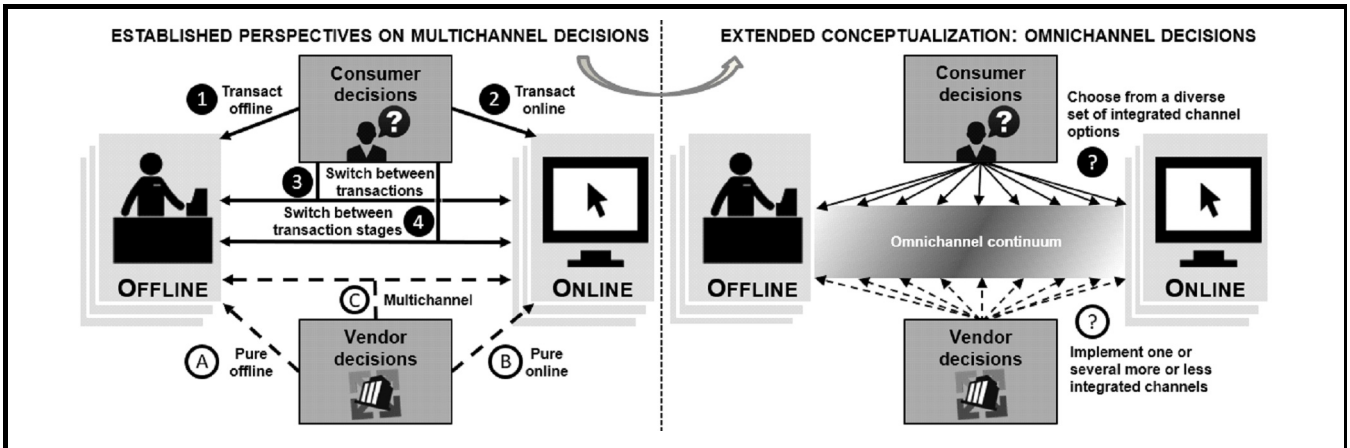

Figure 3. The Omnichannel Continuum

medium-sized retailers would stand to gain through increased foot traffic in their stores that would result from consumers' in-store pickups and/or servicing and returns after transacting with the pure online retailer.

Limitations and Future Research

Caveats exist with respect to this study. First, findings from our experimental study on the impact of omnichannel integration services on online consumer behavior are centered on a single product. Although the product was chosen via a set of elaborate criteria to ensure its suitability for this empirical inquiry (compare Appendix D), product attributes must be taken into account when generalizing our findings to product categories that differ substantially. Search goods with tangible (or standardized) product attributes are the best candidates to benefit from omnichannel integrations services. Future research should address the question of whether omnichannel integration services can alter the competitive dynamics for experience (e.g., fashion) (Dimoka et al. 2012) or credence (e.g., cloud computing services) (Trenz et al. 2018) goods. Naturally, not all omnichannel integration services are amenable to each type of good. Nonetheless, since experience and credence goods are characterized by varying levels of uncertainty, the promise of a contact person in the event of failures may still be relevant in mitigating consumers' concerns.

Second, for the validation of our research model, we decided on an online experiment over a controlled laboratory setting. Despite weaker control over the experimental environment, we are convinced that the pros of an online experiment outweigh its cons in the context of our study. Past studies on multichannel retail have pointed to individual differences (e.g., demographic composition, previous experience, and technical competency) as probable drivers of consumers' channel preference (e.g., Pavlou and Fygenson 2006). Therefore, having a narrow student sample in a controlled laboratory setting could potentially bias our results. In contrast, a representative online sample would enable us to generalize our findings to a wider population (Compeau et al. 2012) by controlling for individual differences. In addition, this study investigates channel integration in a setting where online retailing, as a segment of overall retailing, is comparable to the global average (eMarketer 2014). Future research should consider markets with dissimilar cultural backgrounds (e.g., China) or much higher e-commerce penetration (e.g., United Kingdom) to verify the generalizability of our findings beyond the empirical context in this study.

Third, we opted for practical instantiations of omnichannel integration services for acquisition and recovery when operationalizing our study. Although we admit that our operationalization of omnichannel integration services for acquisition and recovery is not necessarily exhaustive of the entire range of omnichannel integration services offered by retailers, we are fairly confident that our experimental manipulations should be representative given the comprehensive steps we have taken to confirm their validity in practice. While we cannot rule out the possibility that alternate implementations of omnichannel integration services, which have escaped detection in this study, may affect online consumer behavior in ways that deviate from our findings, insights gleaned from this research should be applicable to the majority of retailers who have pursued or are contemplating of pursuing multichannel or omnichannel strategies. Moreover, even though our study espouses omnichannel integration services for online transactions that are augmented by complementary services in a physical store, an opposite direction of

migration from offline to online is also feasible. Unfortunately, prior research and contemporary practice are restricted to the provision of web kiosks in stores for stock-out situations (Bendoly et al. 2005). Because our findings illustrate that physical services are not always preferred over their digital counterparts, future research could explore how digital service offerings could boost physical transactions.

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Appendix A

Determinants of Consumers' Channel Preference in Multichannel Environments

Table A1. Determinants of Consumers' Multichannel Preference

Category	Determinants	References
Channel Differentiators	Assortment, speed of obtaining a product, payment options, negotiability, post-transaction services, social presence, product diagnosticity, price, brand	Chiang and Dholakia (2003); Chiang et al. (2006); Forman et al. (2009); Gensler et al. (2012); Goolsbee (2001); Gupta et al. (2004); Keen et al. (2004); Levin et al. (2005); Lu et al. (2016); Noble et al. (2005); Verhagen and van Dolen (2009); Verhoef et al. (2007)
Channel Attributes	Service quality, ease of use, purchase effort, trust, attitudes, convenience, risk, enjoyment, privacy perceptions, security perceptions	Amaro and Duarte (2015); Badrinarayanan et al. (2012); Bhatnagar et al. (2000); Chiang and Dholakia (2003); Choudhury and Karahanna (2008); Devaraj et al. (2002); Falk et al. (2007); Forman et al. (2009); Frambach et al. (2007); Gensler et al. (2012); Keen et al. (2004); Kollmann et al. (2012); Levin et al. (2005); Lim et al. (2012); Lu et al. (2016); Maity and Dass (2014); Montoya-Weiss et al. (2003); Pavlou and Fygenson (2006); Verhagen and van Dolen (2009); Verhoef et al. (2007); Yang et al. (2013); Wang et al. (2016)
External Influences	Marketing communication, social influence, subjective norm	Ansari et al. (2008); Chintagunta et al. (2012); Datta (2011); Janakiraman and Niraj (2011); Johnson (2008); Keen et al. (2004); Montaguti et al. (2016); Valentini et al. (2011); Verhoef et al. (2007)
Individual Differences	Demographics, geographical proximity, technical competency, previous experience	Ansari et al. (2008); Bendoly et al. (2005); Chintagunta et al. (2012); Frambach et al. (2007); Forman et al. (2009); Gensler et al. (2012); Janakiraman and Niraj (2011); Johnson (2008); Levin et al. (2005); Melis et al. (2015); Montoya-Weiss et al. (2003); Pavlou and Fygenson (2006); Valentini et al. (2011)
Purchase Specifics	Product categories, purchase size	Chiang and Dholakia (2003); Chiang et al. (2006); Chintagunta et al. (2012); Levin et al. (2003); Levin et al. (2005); Wang et al. (2013)

Appendix B

Summary of Extant Literature on Channel Choice, and Their Connection to Convenience and Risk

Table B1. Theoretical Frameworks on Channel Choice

Theoretical Paradigm	Theoretical Premise	Author(s)	Application of Theory	Convenience	Convenience Dimensions (if applicable)			Risk	Risk Dimensions (if applicable)		Contribution of Our Study
				Aggregate	Speed	Effort	Flexibility	Aggregate	Severity	Probability	
Benefit-Risk Framework	Choices are made by evaluating benefits and risk of a channel alternative	Bhatnagar et al. (2000)	Convenience and risk explain channel choice	X				X (financial)			Our study distinguishes between types of integration services as channel differentiators and contextualizes convenience and risk considerations to an omnichannel environment.
		Gensler et al. (2012)	Convenience and risk perceptions explain online channel use across transactional phases (beyond price and quality)	X				X			
		Herhausen et al. (2015)	Service quality and risk explain channel preferences and moderate the effects of channel integration	X (service quality)				X			
		Wang et al. (2016)	Convenience and risk explain online channel choice attitudes (beyond service quality and search effort)		X	X		X			
Theory of Reasoned Action	Beliefs regarding anticipated outcomes influence formation of attitudes, which are a person's (un)favorable evaluations toward a specific behavior	Badrinarayanan et al (2012)	Attitudes and trust are transferred between physical and online channels and shape channel choice decisions					(X) (trust)			Our study widens the scope beyond online channel adoption or use by introducing channel integration between online and offline channels as potential differentiator influencing channel choice.
		Verhoef et al. (2007)	Consumer beliefs regarding channel attributes determine attitudes or attractiveness which in turn determine channel choice	X	X	X		X			

Theoretical Paradigm	Theoretical Premise	Author(s)	Application of Theory	Convenience	Convenience Dimensions (if applicable)			Risk	Risk Dimensions (if applicable)		Contribution of Our Study
				Aggregate	Speed	Effort	Flexibility	Aggregate	Severity	Probability	
Theory of Planned Behavior	Behavioral intention as proximal determinant of behavior is determined by attitude, subjective norm, and perceived behavioral control	Keen et al. (2004)	Subjective norms, attitude, perceived behavioral control, ease of use, and price influence online channel choice intentions			X					Our study widens the scope beyond online channel adoption or use by introducing channel integration between online and offline channels as potential differentiator influencing channel choice.
		Pavlou and Fygenson (2006)	Subjective norms, attitude, perceived behavioral control influence online channel choice intentions and choice			X (ease of purchasing)		X			
Relative Advantage [Innovation Diffusion Theory]	Consumers make adoption decisions based on their perceptions of the relative advantage of the innovation	Choudhury and Karahanna (2008)	Trade-off between benefits of online channels and offline channels explains channel choice	X				X (trust)			Our study distinguishes between types of integration services as channel differentiators and extends the relative assessment of the benefits of two channel alternatives to an omnichannel environment where we consider the evaluation of absolute positive and negative characteristics.
Transaction Cost Theory	Agents choose to conduct transactions in a way that minimizes their transaction costs	Chiang et al. (2006)	Shoppers will purchase products through a channel whose characteristics tend to minimize the transaction costs incurred		X	X		X (product uncertainty)			Our study distinguishes between types of integration services as channel differentiators and explicitly distinguishes between positive and negative channel characteristics. We also consider elements of convenience that cannot be quantified as transaction costs (e.g., flexibility).
		Chiang et al. (2012)	Consumers choose stores with the lowest sum of direct and transaction costs for their shopping basket		X (time/ waiting costs)	X (physic costs)		X (product uncertainty)			
		Forman et al. (2009)	Channel choice as trade-off between offline transportation costs and online disutility costs		X	X					

Theoretical Paradigm	Theoretical Premise	Author(s)	Application of Theory	Convenience	Convenience Dimensions (if applicable)			Risk	Risk Dimensions (if applicable)		Contribution of Our Study
				Aggregate	Speed	Effort	Flexibility	Aggregate	Severity	Probability	
Status Quo Bias Theory	Individuals tend to prefer the situation or decision already in place, irrespective of whether the alternative has a higher utility	Wang et al. (2013)	Channel choice during the information phase influences channel choice during transaction phase		X (time cost)						Our study complements this perspective on pre-transaction and transaction phase interactions by investigating the influence of post-transaction offerings on the transaction phase decision enabled by different types of integration services.
		Falk et al. (2007)	Customers currently using an offline channel should be systematically biased in their evaluations of the online channel in a service context		X (implicitly)	X (implicitly)		X (financial, time, performance, psychological)			
Value/Utility Theory	Consumers are viewed as value maximizers evaluating in terms of its underlying benefits and costs and selecting what provides the greatest overall value	Noble et al. (2005)	Four utilitarian values influence channel choice		X						Our study expands on the utility evaluation as a trade-off between omnichannel-specific convenience and risk considerations. Following the suggestions by Noble et al. (2005), we extend on their value considerations by including effort and risk.
		Gupta et al. (2004)	Consumers express purchase intentions based on utility maximization in terms of the costs and benefits of the retail formats presented to them	X					X	X	
Motivation Theory	Choice behavior is a direct result of balancing appetitive motivation (seeks benefits) and aversive motivation (avoids or mitigates costs or risk)	Lim et al. (2012)	Performance risk in e-commerce can be addressed by providing high-quality information that can facilitate the purchasing process to the same, if not higher level than offered by physical channels	X (comparative benefits)				X (trustworthiness)			Our study also uses risk as a major factor to explain channel choice but applies a more fine-grained measure of risks, distinguishes between choice during transaction and post-transaction phase, and enhances the evaluation by positive (convenience) evaluations of channel configurations.

Theoretical Paradigm	Theoretical Premise	Author(s)	Application of Theory	Convenience	Convenience Dimensions (if applicable)			Risk	Risk Dimensions (if applicable)		Contribution of Our Study
				Aggregate	Speed	Effort	Flexibility	Aggregate	Severity	Probability	
Multiple theories (Brand Extension Theory, Expectation Confirmation Theory)	*Combinations of theories*	Yang et al. (2013)	Perceived online channel service quality and the relative benefits of the online channel explain online channel use intentions	X (relative benefits)		X (relative benefits)					Our study widens the scope beyond online channel adoption or use by introducing channel integration between online and offline channels as potential differentiator influencing channel choice. We enhance the evaluation by considering risks inherent in a channel configuration and contextualize the evaluation to an omnichannel context.
Multiple theories (Technology Acceptance Model, Transaction Cost Theory, Service Quality)	*Combinations of theories*	Devaraj et al. (2002)	Constructs from the three theories explain customer satisfaction and preference for the online channel		X (time)	X (ease of use)		X (reliability)			Our study widens the scope beyond online channel adoption or use by introducing channel integration between online and offline channels as potential differentiator influencing channel choice.
Multiple theories (Benefit-Risk Framework, Relative Advantage)	*Combinations of theories*	Montoya-Weiss et al. (2003)	Relative service quality and risk explain online channel use	X (as part of service quality)				X (security)			Our study distinguishes between types of integration services as channel differentiators. In a purchase rather than service context, we contextualize convenience and risk considerations to an omnichannel environment.

Theoretical Paradigm	Theoretical Premise	Author(s)	Application of Theory	Convenience	Convenience Dimensions (if applicable)			Risk	Risk Dimensions (if applicable)		Contribution of Our Study
				Aggregate	Speed	Effort	Flexibility	Aggregate	Severity	Probability	
Multiple Theories (Media Richness Theory, Task-Media Fit, Behavioral Decision Theory)	*Combinations of theories*	Maity and Dass (2014)	Channel choice is driven by channels' media richness based conditional on task-complexity		X	X					Our study expands on the evaluation single channels by introducing channel integration between online and offline channels as potential differentiator influencing channel choice.
Multiple theories (Theory of Planned Behavior, Technology Acceptance Model, Innovation Diffusion Theory)	*Combinations of theories*	Amaro and Duarte (2015)	Online channel use for travels is determined by factors from multiple theories					X			Our study widens the scope beyond online channel adoption or use by introducing channel integration between online and offline channels as potential differentiator influencing channel choice.
None		Avery et al. (2012)	The order of adding new stores or online shops matters for channel choice		X	X		X			Our study builds upon the theoretical considerations regarding channel integration as channel differentiator and the importance of convenience and risk considerations and consequently theorizes and tests an omnichannel-specific model of channel choice.

Theoretical Paradigm	Theoretical Premise	Author(s)	Application of Theory	Convenience	Convenience Dimensions (if applicable)			Risk	Risk Dimensions (if applicable)		Contribution of Our Study
				Aggregate	Speed	Effort	Flexibility	Aggregate	Severity	Probability	
		Chiang and Dholakia (2003)	Three essential variables influence consumers' choice of shopping medium: (a) convenience characteristic of shopping channels, (b) product characteristics, and (c) perceived price of the product	X							Our study distinguishes between types of integration services as channel differentiators. We enhance the evaluation by considering risks inherent in a channel configuration and contextualize the evaluation to an omnichannel context.
		Frambach et al. (2007)	Consumer preferences for channels are shaped by internet experience, functional, and psychological benefits			X (ease of use)					Our study distinguishes between types of integration services as channel differentiators. In a purchase rather than service context, we represent the benefits of a channel option as convenience evaluations and contextualize convenience and risk considerations to an omnichannel environment.
		Kollmann et al. (2012)	A higher degree of customers' convenience orientation in contrast to the degree of risk aversion and service orientation encourages the selection of the online channel over the offline channel	X				X			Our study expands on the importance of convenience and risk considerations, but postulates that such channel evaluations are dynamic, context-specific and can be influenced by integration services that serve as channel differentiators.

Theoretical Paradigm	Theoretical Premise	Author(s)	Application of Theory	Convenience	Convenience Dimensions (if applicable)			Risk	Risk Dimensions (if applicable)		Contribution of Our Study
				Aggregate	Speed	Effort	Flexibility	Aggregate	Severity	Probability	
		Oppewal et al. (2013)	Two main determinants of store choice (attraction and cost)	X				X			Our study distinguishes between types of integration services as channel differentiators and contextualizes their trade-off to an omnichannel environment.

Appendix C

Omnichannel Integration Services Offered by the Largest Retailers Worldwide and in Germany

We built our screening upon a list of the major retailers worldwide and in Germany. The global sales ranking was derived from the *Global Powers of Retailing 2016 report* (Deloitte 2016) whereas the German sales raking is based on data from the study *Stationärer Einzelhandel Deutschland 2014* (EHI Retail Institute; Statista 2014). The actual screening process followed a two-step procedure: We first screened the websites of the retailers and press reports for information regarding omnichannel integration services. The website enabled us to identify if omnichannel integration services for acquisition could be selected during the transactional process. If no explicit information on the availability or nonexistence of omnichannel integration services for recovery was available, we randomly selected two stores of the retailer and called them to find out whether such services are offered, simulating an actual customer case. In the rare case of ambiguous feedback, we called two more stores until the ambiguity was resolved. The sources for all pieces of information and the call protocols were managed in a database and finally condensed into the overview in Table C1.

Table C1. Omnichannel Integration Services Offered by the Largest Retailers Globally and in Germany

Global Retailer	Country	Ranking	Net Sales (Billion US$)	Omnichannel Integration Services for Acquisition		Omnichannel Integration Services for Recovery	
				Immediate Pickup	Delayed Pickup	Service in Store	Returns in Store
Walmart	US	Worldwide	485.651	X(1)	X(5)	X	X
Costco	US	Worldwide	112.64		X(3)		X
Tesco	GB	Worldwide	99.713		X		X(3)
The Home Depot	US	Worldwide	83.176	X(2)	X(5)		X
Walgreen Co.	US	Worldwide	76.392	X(3)			X(3)
Target	US	Worldwide	72.618	X(1)	X(5)	X(3)	X
Lowe's Companies, Inc.	US	Worldwide	56.223	X(1)		X	X
Best Buy Co., Inc.	US	Worldwide	40.339	X(2)	X(5)	X	X
Sears Holdings Corp.	US	Worldwide	31.198	X(1)	X(1)(5)		X
Macy's	US	Worldwide	28.105	X(1)(7)		X	X
Rite Aid Corporation	US	Worldwide	26.528				
Apple Inc./Retail Stores	US	Worldwide	21.462	X(2)	X(5)	X	X
Kohl's	US	Worldwide	19.023	X(1)			X
Dollar General	US	Worldwide	18.91				
Marks and Spencer	GB	Worldwide	16.641		X(5)	X	X
The Gap	US	Worldwide	16.435	X(9)		X(4)	X(4)
John Lewis Partnership	GB	Worldwide	15.882		X	X	X
Nordstrom	US	Worldwide	13.11	X(2)		X	X
Toys "R" Us	US	Worldwide	12.361	X(1)			X
J. C. Penney Company	US	Worldwide	12.257	X(1)(7)	X	X	X
BJ's Wholesale Club	US	Worldwide	12	X(1)			X(4)
Bed Bath and Beyond	US	Worldwide	11.881	X(2)		X	X
Staples	US	Worldwide	11.585	X(2)	X3)5)	X(4)	X(4)
German Retailer	**Country**	**Ranking**	**Net Sales (Billion €)**	**Immediate Pickup**	**Delayed Pickup**	**Service in Store**	**Returns in Store**
Media Markt	DE	Germany	6.142	X(2)	X(5)	X	X
dm-drogerie markt	DE	Germany	5.020		X	X	X
Rossmann	DE	Germany	4.283				
IKEA	DE	Germany	3.990	X(2)		X	X
Saturn	DE	Germany	3.330	X(2)	X(5)	X	X
Obi	DE	Germany	3.018	X(2)(7)(9)		(X)(6)	(X)(6)
Galeria Kaufhof	DE	Germany	2.899		X(5)	X	X
Intersport	DE	Germany	2.790	X(2)(9)	X(5)	(X)(6)	(X)(6)
Euronics	DE	Germany	2.773		X(5)	X	X
Karstadt	DE	Germany	2.700		X(5)		(X)(8)
Expert	DE	Germany	2.563	X(2)(9)	X(5)	X	X
H&M	DE	Germany	2.423				X
C&A	DE	Germany	2.367		X(5)	(X)(6)	(X)(6)

German Retailer	Country	Ranking	Net Sales (Billion €)	Immediate Pickup	Delayed Pickup	Service in Store	Returns in Store
Müller	DE	Germany	2.347		X(5)	X	X
Bauhaus	DE	Germany	2.294	X(2)(9)		X	X
Deichmann	DE	Germany	1.829			X	X
Hornbach	DE	Germany	1.820	X(2)(9)	X(5)	X	X
Peek & Cloppenburg – West	DE	Germany	1.474		X(5)	X	(X)(6)
Höffner	DE	Germany	1.400				(X)(7)
KiK	DE	Germany	1.221				
Roller	DE	Germany	1.150	X(2)(4)			X(8)
Poco Domäne	DE	Germany	1.034	X(2)		X(1)	X
Douglas	DE	Germany	0.908	X(2)	X(5)	(X)(6)	X
Medimax	DE	Germany	0.906	X(2)(9)	X(5)	X	X(8)
Segmüller	DE	Germany	0.882				
EP (ElectronicPartner)	DE	Germany	0.818	X(2)		X	(X)(6)
Globus Baumarkt	DE	Germany	0.813	X(2)		X(3)(6)	
Dänisches Bettenlager	DE	Germany	0.794			X(4)(6)	
Ernsting's Family	DE	Germany	0.756		X(5)	X	X(8)
Takko Fashion	DE	Germany	0.703		X(5)	X	X
SB Möbel Boss	DE	Germany	0.663	X(2)	X(5)		
Porta	DE	Germany	0.637	(X)	(X)		
Thalia	DE	Germany	0.590	X(2)	X(5)	X	X
Hellweg	DE	Germany	0.530			(X)(6)	(X)(6)
Idee+Spiel	DE	Germany	0.519	X(2)(7)		X	(X)
Tchibo	DE	Germany	0.484		X(4)(5)	(X)(6)	X
Vedes	DE	Germany	0.481				
ZEG	DE	Germany	0.468		X(7)	X	X(8)
Thomas Philipps	DE	Germany	0.467				
XXXLutz	DE	Germany	0.464	X(2)			
Breuninger	DE	Germany	0.460		X(5)	(X)(6)	X
Dehner	DE	Germany	0.459	X(2)		X	X
Euronics XXL	DE	Germany	0.447	X(2)		X(3)(7)	X
NKD	DE	Germany	0.445		X(5)	X	(X)(8)
Zara	DE	Germany	0.421		X(5)	X	X
Apollo-Optik	DE	Germany	0.409		X(5)	X	
s.Oliver	DE	Germany	0.404		X(7)		X(7)

Source: Own research as of July 2016; net sales from Global Powers of Retailing 2016 report (Deloitte 2016) for worldwide and Stationärer Einzelhandel Deutschland 2014 ((EHI Retail Institute; Statista 2014) for Germany.

Note: Retailers without online shop and pure grocery retailers have been excluded.

(1) For selected products available in store; (2) for products available in store at time of purchase; (3) selected items; (4) most items; (5) free shipping to store; (6) store ships return/defective item; (7) not in all stores; (8) return in-store possible after store pickup; (9) reservation with payment in store only.

Appendix D

Product Selection

First, the purchase should be founded on cognitive processes in order to be able to study the effect of omnichannel integration services on channel perceptions. Many influences on impulsive purchase behavior such as norms (Rook and Fisher 1995), culture (Kacen and Lee 2002), gender (Coley and Burgess 2003), and resources (Vohs and Faber 2007) have been identified. However, the aim of this study is to measure differences in the perception of different channel options. While impulsive purchase decisions are characterized as yes/no decisions (Vohs and Faber 2007), a study of channel perceptions requires participants to compare certain characteristics of the channel cognitively. Consumers are more likely to exhibit this behavior for purchases that are of higher importance to them. Therefore, a product outside of the lowest price range with rather long operating life was selected. Second, most omnichannel integration services require consumers to move the product in a certain way. An extremely large product would be difficult to move for some participants (e.g., cyclists and elderly), thereby interfering with consumers' channel preferences in unexpected ways. Therefore, the package of the product must have a size that can be carried by anyone (in contrast to for instance a flat screen TV). Third, it was important that the product was of potential interest for every demographic group to ensure involvement with the task. Fourth, it was crucial that the product uncertainty was not strongly correlated with technical competency of participants. For instance, a consumer with a low product uncertainty (e.g., router) could have less need for support and services. At the same time, his/her internet skills would also generally increase the likelihood of this consumer to transact online. If this relationship is systematically induced by product selection, the correlation could affect the results of the study.

Appendix E

Scenario for Immediate Pickup as Omnichannel Integration Service

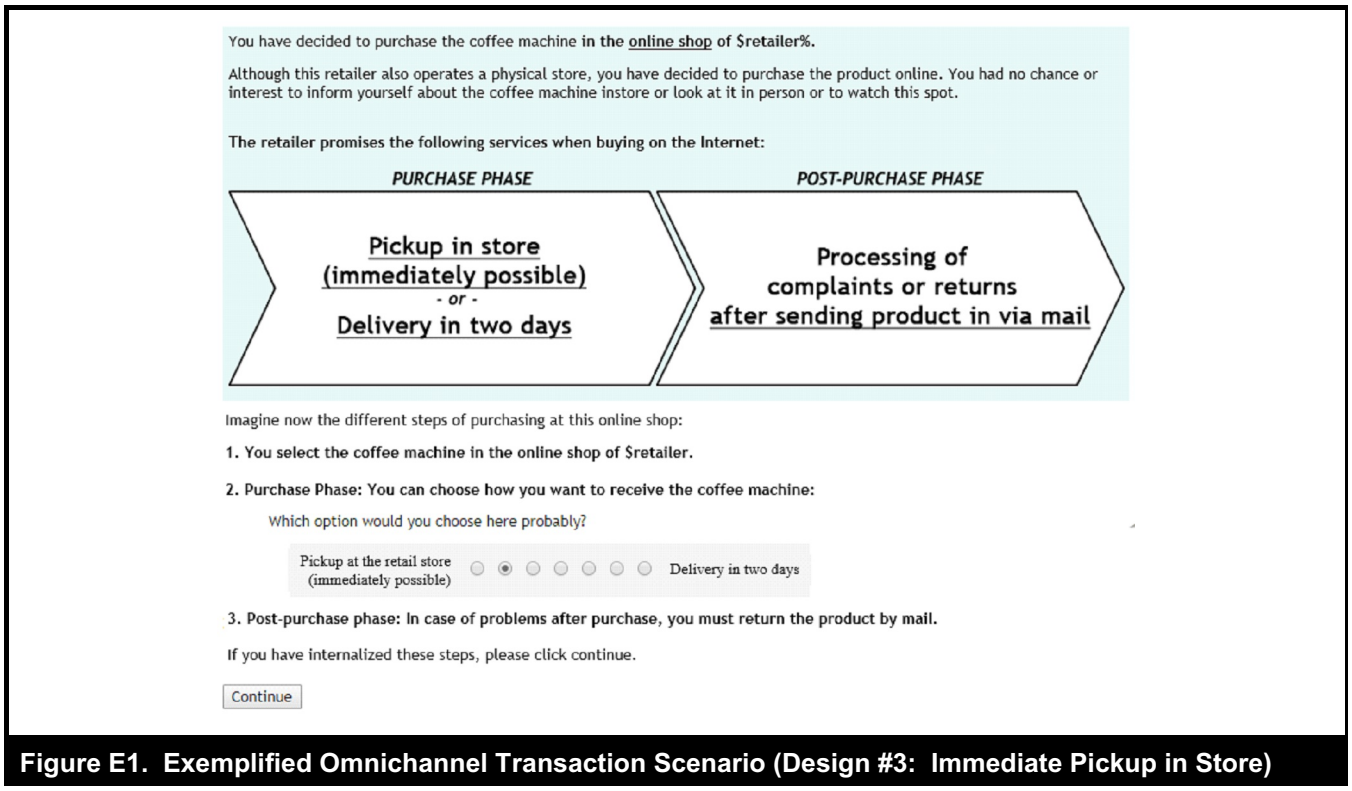


Figure E1. Exemplified Omnichannel Transaction Scenario (Design #3: Immediate Pickup in Store)

Appendix F

Measurement Instrument Development Process

First, the conceptual definition of each latent variable was made explicit. In cases where no definition was given by the original source, a precise conceptual definition of the construct was developed. Such a definition is necessary to be precise in "what the construct does and does not refer to" (MacKenzie et al. 2011, p. 295). An overview of these definitions is given in the Table F1.

Table F1. Conceptual Definitions of Latent Constructs

Construct	Definition	Source
(Post-)Transaction Speed Convenience	Perceived delay associated with finalizing the transaction at a certain retailer (reestablishing subsequent contact with the retailer)	Adapted from Seiders et al. (2007)
(Post-)Transaction Effort Convenience	Perceived effort costs associated with finalizing the transaction at a certain retailer (reestablishing subsequent contact with the retailer)	Adapted from Seiders et al. (2007)
(Post-)Transaction Flexibility Convenience	Perceived flexibility associated with finalizing the transaction at a certain retailer (reestablishing subsequent contact with the retailer)	new
(Post-)Transaction Risk Likelihood	Perceived likelihood of a possible loss when transacting with this retailer (receiving post-transaction services from this retailer)	Glover and Benbasat (2010)
(Post-)Transaction Risk Severity	Perceived severity of a possible loss when transacting with this retailer (receiving post-transaction services from this retailer)	Glover and Benbasat (2010)
Product Uncertainty	Buyer's difficulty in evaluating the product and predicting how it will perform in the future	Dimoka et al. (2012)
Online Shopping Experience	Knowledge or skills derived from participation in online shopping activities	Frambach et al. (2007); Murray and Schlacter (1990)
Risk Propensity	Individual's tendency to take or avoid risk	Zhao et al. (2005)
Choice Probability	Likelihood of choosing the offered channel configuration over a physical store	Chocarro et al. (2013); Huang and Oppewal (2006)

Most of the original items stem from peer reviewed journal articles in English language. Since respondents from our panel are Germans, two colleagues independently translated the measurement items to German (Benlian et al. 2011). The translations were consolidated by a third colleague. Subsequently, a fourth person translated the items back to English to verify that the items had not lost their original meaning through the translation process. The translations of a few items were refined based on this process.

Due to the translation and since some of the authors report somewhat low reliabilities for their constructs, the latent variables were validated in a qualitative pretest as suggested by MacKenzie et al. (2011). Six coders were used to sort the individual items into classes and define these classes (Moore and Benbasat 1991). Content validity was thus assured. Furthermore, the sorting offered a first assessment of discriminant validity. Since some of the constructs have not been tested jointly and we separated the convenience dimensions, it was necessary to rule out any possibility of construct overlap. The qualitative feedback of the reviewers was also employed to perform minor improvements in the wording of a few items to eliminate all doubt about the unambiguity of the wording.

In the following, a formal quantitative pretest using 153 participants was run to check the attributes of the measurement model. The measurement models were assessed using the well-established tests of internal consistency reliability, convergent validity, indicator reliability and discriminant validity. The quantitative pretest allowed scale purification to keep the final survey as short as possible. Therefore, items that were not necessary for the conceptual domain and furthermore did not meet the threshold of one of the tests were carefully eliminated.

Two different scales are used to measure the decision between the offline store and the manipulated alternative. Two items measure the preference by differential scales between the two alternatives (Chocarro et al. 2013; Huang and Oppewal 2006). In addition to this and in the light of the variability of purchase intention scales (Wright and MacRae 2007), we added a third item measured on a probability scale. On this scale, participants had to state the likelihood of choosing one or the other channel option. Taken together, these scales provide a reliable measure of the participants' choice preference.

Appendix G

Survey Instrument

Table G1. Measurement Items for Latent Constructs (English Version)
Online Transaction Speed Convenience (based on Seiders et al. 2007) OTCS1: It takes very little time to receive the product when purchasing at this online shop. OTCS2: I can receive the product as soon as possible when purchasing at this online shop. OTCS3: Purchasing from this online shop allows me to receive the product as fast as possible.
Online Transaction Effort Convenience (based on Seiders et al. 2007) OTCE1: It can be time-consuming to conclude my purchase at this online shop and receive the product. [reversed] OTCE2: I must expend a lot of energy to purchase and receive the product at this online shop. [reversed] OTCE3: It is not strenuous to conduct the purchase at this online shop and get the product.
Online Transaction Flexibility Convenience (based on Childers et al. 2001) OTCF1: This online shop allows flexibility in conducting the purchase. OTCF2: There are different ways of completing my purchase at this online shop. OTCF3: I can decide how I want to interact with this online shop to finalize my purchase.
Online Transaction Risk Likelihood (based on Glover and Benbasat 2010) OTRL1: I would suffer a loss when I purchase from this retailer (Improbable … Probable).* OTRL2: I would suffer a loss when I purchase from this retailer (Unlikely … Likely).* OTRL3: I would suffer a loss when I purchase from this retailer (Rare … Frequent).*
Online Transaction Risk Severity (based on Glover and Benbasat 2010) OTRS1: The loss I could suffer when I purchase from this online shop would be (Meaningless to me … Meaningful to me).* OTRS2: The loss I could suffer when I purchase from this online shop would be (Unimportant to me … Important to me).* OTRS3: The loss I could suffer when I purchase from this online shop would be (Insignificant to me … Significant to me).*
Online Post-Transaction Speed Convenience (based on Seiders et al. 2007) OPCS1: It takes very little time for problems to be solved at this retailer. OPCS2: I can return or exchange items with this retailer as soon as possible. OPCS3: Problems can be addressed by this retailer as fast as possible.
Online Post-Transaction Effort Convenience (based on Seiders et al. 2007) OPCE1: It can be time-consuming to return or exchange products at this retailer. [reversed] OPCE2: I must expend a lot of energy when returning or exchanging products at this retailer. [reversed] OPCE3: It is not strenuous to conduct return or exchanges at this retailer.
Online Post-Transaction Flexibility Convenience (based on Childers et al. 2001) OPCF1: This retailer allows flexibility in the return or exchange of products. OPCF2: There are different ways of returning or exchanging products at this retailer. OPCF3: I can decide how I want to interact with this retailer regarding product returns or exchanges.
Online Post-Transaction Risk Likelihood (based on Glover and Benbasat 2010) OPRL1: I would suffer a loss when I return or exchange the article purchased from this retailer (Improbable … Probable).* OPRL2: I would suffer a loss when I return or exchange the article purchased from this retailer (Unlikely … Likely).* OPRL3: I would suffer a loss when I return or exchange the article purchased from this retailer (Rare … Frequent).*
Online Post-Transaction Risk Severity (based on Glover and Benbasat 2010) OPRS1: The loss I could suffer when I return or exchange the article purchased from this retailer would be (Meaningless to me … Meaningful to me).* OPRS2: The loss I could suffer when I return or exchange the article purchased from this retailer would be (Unimportant to me … Important to me).* OPRS3: The loss I could suffer when I return or exchange the article purchased from this retailer would be (Insignificant to me … Significant to me).*

Retail Store Transaction Convenience (Seiders et al. 2007) RTC1: This store makes it easy for me to complete my purchase. RTC2: It is effortful to complete my purchase at the store. [reversed] RTC3: I am able to complete my purchase quickly at this store. RTC4: It takes little time to finalize my purchase at the store.
Retail Store Transaction Risk (Gefen and Pavlou 2012) RTR1: There is a considerable risk involved in transacting with this store. RTR2: There is a high potential for loss when purchasing from this store. RTR3: My decision to purchase from this store is risky.
Retail Store Post-Transaction Convenience (Seiders et al. 2007) RPC1: This retailer makes it easy for me to return or exchange products. RPC2: It can be effortful to return or exchange at this retailer. [reversed] RPC3: The retailer takes care of product exchanges and returns promptly. RPC4: Any after-purchase problems I experience are quickly resolved at this retailer.
Retail Store Post-Transaction Risk (Gefen and Pavlou 2012) RPR1: There is a considerable risk involved in returning or exchanging products at this retailer. RPR2: There is a high potential for loss when returning or exchanging products at this retailer. RPR3: My decision to return or exchange products at this retailer is risky.
Product Uncertainty (Dimoka et al. 2012) PUN1: I am certain that this coffee machine will perform as I expect it to perform. [reversed] PUN2: I feel that purchasing this coffee machine involves a high degree of uncertainty about the machine's actual quality. [reversed] PUN3: I am concerned that the coffee machine would not function as well as I think.
Online Shopping Experience (Frambach et al. 2007; Murray and Schlacter 1990) OEX1: I have a great deal of experience with the online retailing. OEX2: I am familiar with the different possibilities to use the internet for purchasing. OEX3: I am very confident in using the internet for purchases.
Risk Propensity (Glaser et al. 2016; Zhao et al. 2005): RPRO1: I enjoy the excitement of taking risk. RPRO2: I am willing to undertake significant risk if the possible rewards are high enough. RPRO3: I often take risks.
Choice Probability (Chocarro et al. 2013; Huang and Oppewal 2006) CPR1: How likely is it that you purchase the product at the described retailer?** CPR2: If prices were the same, I would prefer to purchase the product at [offline store … $describedonline-shop].***CPR3: To which extent would you choose to buy in-store or online? [definitely by in-store - definitely buy online] ***
Distance to Store How long does it take you to reach the store using your preferred type of transportation? [1: around 1 minute; 2: around 5 minutes; 3: around 10 minutes; 4: around 20 minutes; 5: around 30 minutes; 6: more
Age How old are you?
Gender What is your gender? [1: male; 2: female]

Note: Unless indicated otherwise, all items were measured on a seven-point Likert scale from strongly disagree to strongly agree.

*Differential scale was employed to choose between the alternative risk assessments.

**100% had to be distributed between the offline alternative and the described online-shop with or without certain omnichannel integration services.

***Differential scale was employed to measure the strength of choice probability between the offline alternative and the described online-shop.

Appendix H

Overview of Study Procedures

At the start, the participants were welcomed and got a brief introduction to the alleged purpose of the study. The aim of the introduction was to make participants comfortable and to create a realistic expectation of the subsequent steps without creating any awareness of an experimental manipulation. The introduction included an estimate of the duration of the questionnaire (15 minutes) and rough description of the structure of the survey. Anonymity was guaranteed to reduce social desirability in the answers of the participants (Podsakoff et al. 2003). In the next step, participants were asked to state their typical selection of online or offline channels across two product categories. In step three, the coffee machine was presented to the participants. This page also included the instructional manipulation check described in Appendix H. Subsequently, the purchase scenario in a physical store including the offline price was presented. The next section contained questions about the perception of this purchase at the offline vendor. Afterwards, the participants were randomly assigned to one of the 12 online scenarios described in the section "Experimental Design" and a description of the scenario was given. Control questions made sure that the participants had read and fully understood the offering of the vendor. Afterwards, participants made their choice between the offline option and their respective online option. The next section contained the measurements for the perception of this purchase at the respective vendor. Subsequently, participants were asked about their prior online, multichannel and omnichannel experiences. They were then requested to state their involvement and their knowledge about the product including their coffee consumption. Finally, some additional control questions participants' demographics were requested. At the end of the questionnaire, participants were debriefed and thanked for their participation.

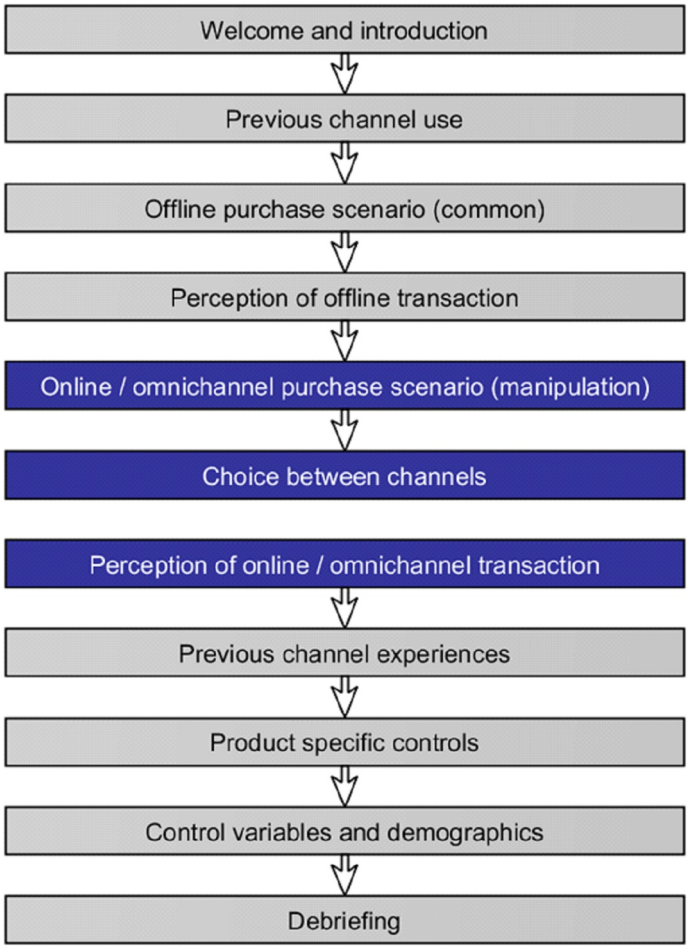


Figure H1. Flow Chart of Study Procedures

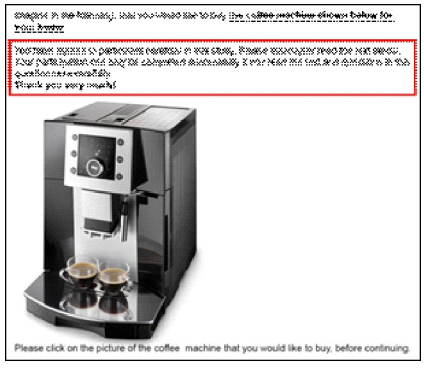
Appendix I

Satisficing

Four measures have been implemented to detect satisficing. First, the importance of their individual response was described in the introduction of the study to increase the involvement of the participants. Second, the survey was designed as comprehensive and interesting as possible. Survey length facilitates faster, shorter and more uniform answering behavior and more non-options (Galesic and Bosnjak 2009). Therefore, the insights from the pretest were used to shorten the questionnaire wherever possible. Third, the participants were given a financial incentive of €1.50. This amount was added to their personal account that is managed by the professional researching firm. Their financial incentive was only paid-out if they reached the threshold amount of €20 without giving any indication of misconduct. Therefore, the financial incentive gave participants a strong incentive to put the required effort into the processing of the questionnaire. The fourth and probably most powerful active measure to prevent satisficing behavior is the instructional manipulation check (IMC) by Oppenheimer et al. (2009). The IMC was developed to increase the statistical power of experimental studies. An implementation of the IMC includes a specific exercise (e.g., clicking somewhere) hidden within the instructions of the study. Thus, participants who do not read the instructions can be identified because they do not perform this exercise. In the original paper, the authors try to replicate the well-established effects of Thaler's Transaction Utility Theory (Thaler 1985). In their experiment, Oppenheimer et al. (2009) were not able to reproduce the results. However, after removing participants who failed the IMC, Thaler's effects were reproduced almost perfectly. Since extensive elimination of replies can introduce a bias to an empirical study and reduce its external validity (Chen 2011), a different application of the IMC is much more appealing. If participants receive immediate feedback that they need to read the instruction carefully and get another chance to do so, their satisficing behavior in the following is reduced so heavily that their answering behavior is indistinguishable from other participants' (Oppenheimer et al. 2009). The message was formulated in a positive way and included a reminder of the agreement participants made on the previous page to encourage their further participation. An overview of the implementation of the instructional manipulation check is given in the figure below. These four measures to prevent satisficing reduced the need for excessive elimination of inattentive participants and should be helpful to increase the statistical power of this experiment without introducing a bias to this study.

Beyond these means to prevent satisficing, it was important to also detect extreme satisficers to be able to eliminate participants who did not contribute any valuable information. Several measures to identify satisficers have been combined to ensure that only extreme satisficers were removed to prevent possible systematic errors from participant elimination (Chen 2011). These measures include the number of times the instructional manipulation check was failed (more three times), overly extreme stated prices (smaller than 40% or larger than 160% of reference value) and the answers on duplicate questions. Beyond this, control questions were included to make sure that the participants had read and understood the scenario presented to them. These control questions also acted as manipulation check for the experimental manipulation.

The IMC question, embedded into a normal page of questions following below



IMC test failed: message with reminder to read carefully appears

IMC test successful: prompt to click disappears and check icon indicates success

Figure I1. Instructional Manipulation Check

Appendix J

Descriptive Statistics

The choice of the sample was made in favor of a more diversified sample in order to increase the external validity of the study (Shadish et al. 2002). Answers from 778 internet users have been collected by a professional research firm that is certified according to ISO 9001 and ISO 26362. Consistent with random assignment, participants are distributed almost evenly across the 12 scenarios (64 or 65 per cell).

As illustrated in the table below, the sample comprises participants from all walks of life. No demographic group was neglected and the sample represents the population of German internet users by gender and age (AGOF 2016). Participants have an average age of 43 years. The gender distribution is nearly balanced. The majority of participants is working with the median household income range being 2501-3000€. More than half of the participants have either a completed vocational training or a university degree. Income and education distributions are similar to the statistics of the German online population. This provides a strong indication that results derived using this group of participants hold far beyond the set of questioned customers.

Figure J1. Demographic Distribution of Respondent Sample

Age Group					
14-19	**20-29**	**30-39**	**40-49**	**50-59**	**60+**
65 (8.4%)	135 (17.4%)	134 (17.2%)	156 (20.1%)	151 (19.4%)	137 (17.6%)

Gender		Occupation		
Female	**Male**	**In-Training**	**Working**	**Unemployed/Retired**
375 (48.2%)	403 (51.8%)	105 (13.5%)	471 (60.5%)	202 (26.0%)

Household Net Income					
< 500€	**501 – 1500€**	**1501 – 2500€**	**2501 – 3500€**	**> 3500€**	**Not Specified**
32 (4.1%)	137 (17.6%)	190 (24.4%)	159 (20.4%)	159 (20.4%)	101 (13.0%)

Highest Education Level						
No Degree	**Secondary School**	**Higher Education**	**Completed Vocational Training**	**University Degree**	**Doctorate Degree**	**Not Specified**
8 (1.0%)	174 (22.4%)	125 (16.1%)	237 (30.5%)	209 (26.9%)	17 (2.2%)	8 (1.0%)

Appendix K

Results from Analysis of Variance (ANOVA)

To cross-validate our results, we also conducted an analysis of variance to test the effect of our manipulations on channel perceptions. To ensure consistency, we extracted the factor scores from PLS and used those scores in the analysis. The coding of the manipulations is depicted in Table K1.

Table K1. Coding of Experimental Manipulation (Between-Subjects Factors)

Experimental Manipulation		Interpretation	Sample *N*
Same Day Delivery	0	Delivery in two days	389
	1	Same day delivery	389
Pickup	0	No pickup available	260
	1	Pickup in two days available	259
	2	Pickup immediately available	259
Service in Store	0	No service or returns in store	389
	1	Service or returns in store	389

In case of a significant effect of the pickup manipulation, we conducted a *post hoc* multiple comparison to identify what type of pickup influenced the channel perception. The results confirm the results of the PLS analysis and are listed in the following tables.

Table K2. ANOVA Between-Subjects Effects of Experimental Manipulations on Transaction Perceptions [Sample *N* = 778]

Experimental Manipulation	*df*	Dependent Variable (F)				
		OTCS	OTCE	OTCF	OTRS	OTRL
Same Day Delivery	1	212.223***	.025	11.170***	.121	2.005
Pickup	2	4.177*	.711	55.109***	4.639**	.209
Service in Store	1	.028	.336	3.279	1.884	2.119
Same Day Delivery * Pickup	2	9.370***	2.137	4.284*	.221	1.007
Same Day Delivery * Service in Store	1	.627	.002	.717	.015	.050
Pickup * Service in Store	2	.643	2.178	5.936**	.083	2.214
Same Day Delivery * Pickup * Service in Store	2	1.635	2.667	1.466	1.318	.022

Note: *p < 0.05; **p < 0.01; ***p < 0.001; not significant otherwise.

Tabke K3. *Post Hoc:* Multiple Comparisons of Experimental Manipulations for Pickup

Type of Pickup		Dependent Variable (Mean Difference (I-J))		
(I) Pickup	(J) Pickup	OTCS	OTCF	OTRS
0	1	-.025	-.744***	.075
	2	-.203**	-.728***	.259**
1	0	.025	.744***	-.075
	2	-.178^{+}	.016	.184
2	0	.203**	.728***	-.259**
	1	.178^{+}	-.016	-.184

Note: Based on observed means, Sidak correction, ^{+}p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001; not significant otherwise.

Table K4 NOVA Between-Subjects Effects of Experimental Manipulations on Post-Transaction Perceptions [Sample *N* = 778]

Source	*df*	Dependent Variable (F)				
		OPCS	OPCE	OPCF	OPRS	OPRL
Same Day Delivery	1	.056	.245	.984	.442	.641
Pickup	2	.806	2.173	1.712	1.880	2.044
Service in Store	1	206.170***	197.541***	869.965***	57.236***	61.025***
Same Day Delivery * Pickup	2	1.284	.622	1.422	1.519	1.771
Same Day Delivery * Service in Store	1	.021	1.058	.138	.585	1.180
Pickup * Service in Store	2	1.148	3.334*	3.339*	.133	.496
Same Day Delivery * Pickup * Service in Store	2	.263	.076	.770	.631	.214

Note: *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$; not significant otherwise.

Appendix L

Descriptive Statistics of Measurement Model

Table L1. Descriptive Statistics of Measurement Model

Constructs	Item ID	Factor Loadings	Items per Construct	Composite Reliability	Mean	Standard Deviation	Average Variance Extracted
Online Transaction Speed Convenience	OTCS1 OTCS2 OTCS3	.85 .93 .93	3	.93	5.5	1.5	.81
Online Transaction Effort Convenience	OTCE1 OTCE2 OTCE3	.83 .79 .83	3	.86	6.1	1.1	.66
Online Transaction Flexibility Convenience	OTCF1 OTCF2 OTCF3	.90 .90 .89	3	.92	5.5	1.4	.80
Online Transaction Risk Likelihood	OTRL1 OTRL2 OTRL3	.86 .88 .82	3	.89	2.5	1.2	.73
Online Transaction Risk Severity	OTRS1 OTRS2 OTRS3	.94 .93 .94	3	.96	3.7	1.7	.88
Online Post-Transaction Speed Convenience	OPCS1 OPCS2 OPCS3	.91 .94 .91	3	.94	4.8	1.6	.84
Online Post-Transaction Effort Convenience	OPCE1 OPCE2 OPCE3	.92 .91 .90	3	.94	4.7	1.8	.83
Online Post-Transaction Flexibility Convenience	OPCF1 OPCR2 OPCF3	.96 .97 .96	3	.98	4.4	2.2	.93

Constructs	Item ID	Factor Loadings	Items per Construct	Composite Reliability	Mean	Standard Deviation	Average Variance Extracted
Online Post-Transaction Risk Likelihood	OPRL1 OPRL2 OPRL3	.94 .92 .91	3	.985	3.0	1.5	.86
Online Post-Transaction Risk Severity	OPRS1 OPRS2 OPRS3	.95 .94 .91	3	.95	4.0	1.7	.87
Retail Store Transaction Convenience	RTC1 RTC2 RTC3 RTC4	.69 .79 .73 .83	4	.85	5.5	1.1	.58
Retail Store Transaction Risk	RTR1 RTR2 PTP3	.83 .83 .97	3	.88	2.1	1.2	.71
Retail Store Post-Transaction Convenience	RPC1 RPC2 RPC3 RPC4	.87 .76 .84 .85	4	.90	5.3	1.2	.69
Retail Store Post-Transaction Risk	RPR1 RPR2 PRP3	.91 .89 .91	3	.93	2.2	1.3	.82
Product Uncertainty	PUN1 PUN2 PUN3	.79 .86 .88	3	.88	3.5	1.4	.71
Online Shopping Experience	OEX1 OEX2 OEX3	.94 .91 .94	3	.95	6.0	1.2	.87
Risk Propensity	RPRO1 RPRO2 RPRO3	.92 .86 .93	3	.93	2.7	1.4	.82
Choice Probability	CPR1 CPR2 CPR3	.92 .91 .94	3	.95	5.5	3.1	.85
Distance to Store	DIST	1	1	1	3.9	1.1	1
Age	AGE	1	1	1	43.2	16.3	1
Gender	GEN	1	1	1	1.5	0.5	1

Appendix M

Inter-Construct Correlation Matrix

Table M1. Inter-Construct Correlation Matrix

	AGE	CPR	DIST	GEN	RPC	RPR	RTC	RTR	OEX	OPCE	OPCF	OPRL	OPRS	OPCS	PUN	RPR	OTCE	OTCF	OTRL	OTRS	OTCS
AGE	**1**																				
CPR	-.12	**1**																			
DIST	-.02	.15	**1**																		
GEN	.03	.04	-.05	**1**																	
RPC	.17	-.23	-.12	.00	**.83**																
RPR	-.15	.17	.06	.04	-.68	**.90**															
RTC	.14	-.28	-.27	.02	.43	-.33	**.76**														
RTR	-.14	.17	.07	.08	-.33	.52	-.42	**.84**													
OEX	-.15	.22	-.06	.08	.03	-.04	.10	-.02	**.93**												
OPCE	.09	.18	-.05	.03	.27	-.20	.13	-.15	.07	**.90**											
OPCF	.04	.16	.03	.04	.05	-.02	.05	-.06	.03	.66	**.96**										
OPRL	-.12	-.15	.02	-.03	-.32	.30	-.13	.19	-.17	-.65	-.42	**.93**									
OPRS	-.16	-.20	.02	-.09	-.11	.10	.00	.09	-.08	-.44	-.31	.50	**.94**								
OPCS	.08	.16	-.03	.05	.27	-.21	.13	-.17	.07	.79	.71	-.59	-.41	**.86**							
PUN	-.01	-.01	.07	.04	-.23	.21	-.16	.21	-.20	-.15	-.07	.18	.11	-.16	**.84**						
RPR	-.29	.07	-.07	.21	-.13	.19	-.05	.19	.06	-.06	-.05	.14	.09	-.07	.04	**.90**					
OTCE	.06	.26	.00	-.05	.12	-.25	.16	-.28	.28	.22	.10	-.28	-.13	.20	-.21	-.15	**.84**				
OTCF	.04	.21	-.01	-.01	.15	-.11	.14	-.12	.15	.21	.21	-.22	-.15	.24	-.15	-.05	.37	**.90**			
OTRL	-.13	-.17	.03	-.02	-.20	.23	-.20	.25	-.19	-.30	-.13	.50	.27	-.23	.19	.14	-.42	-.25	**.85**		
OTRS	-.16	-.22	-.02	-.05	-.10	.11	.00	.08	-.16	-.16	-.05	.29	.64	-.15	.15	.12	-.21	-.18	.40	**.94**	
OTCS	.14	.20	.09	-.05	.12	-.12	.09	-.18	.05	.12	.09	-.15	-.06	.17	-.10	-.12	.32	.32	-.22	-.14	**.83**

Note: Square root of Average Variance Extracted (AVE) shown on diagonals.

Appendix N

Factorial Loadings

Table N1. Factorial Loadings

	AGE	CPR	DIST	GEN	RPC	RPR	RTC	RTR	OEX	OPCE	OPCF	OPRL	OPRS	OPCS	PUN	RPRO	OTCE	OTCF	OTRL	OTRS	OTCS
AGE	1	-.12	-.02	.03	.17	-.15	.14	-.14	-.15	.09	.04	-.12	-.16	.08	-.01	-.29	.06	.04	-.13	-.16	.14
CPR1	-.13	.92	.14	.01	-.21	.16	-.27	.15	.19	.14	.13	-.14	-.17	.13	-.01	.05	.24	.18	-.16	-.18	.16
CPR2	-.10	.91	.13	.06	-.17	.11	-.22	.13	.20	.19	.18	-.16	-.19	.19	-.04	.07	.25	.23	-.16	-.22	.21
CPR3	-.09	.94	.14	.04	-.25	.19	-.30	.19	.21	.15	.14	-.13	-.19	.13	.02	.07	.23	.18	-.15	-.21	.18
DIST	-.02	.15	1	-.05	-.12	.06	-.27	.07	-.06	-.05	.03	.02	.02	-.03	.07	-.07	.00	-.01	.03	-.02	.09
GEN	.03	.04	-.05	1	.00	.04	.02	.08	.08	.03	.04	-.03	-.09	.05	.04	.21	-.05	-.01	-.02	-.05	-.05
RPC1	.14	-.19	-.13	.00	.87	-.57	.35	-.22	.05	.22	.05	-.28	-.09	.22	-.18	-.07	.08	.14	-.16	-.08	.07
RPC2	.18	-.20	-.09	-.04	.76	-.69	.33	-.39	-.04	.24	.05	-.25	-.09	.20	-.17	-.16	.09	.05	-.18	-.12	.13
RPC3	.10	-.19	-.08	.02	.84	-.50	.36	-.24	.06	.20	.02	-.24	-.07	.21	-.19	-.10	.13	.17	-.14	-.07	.11
RPC4	.16	-.18	-.11	.01	.85	-.50	.38	-.25	.06	.24	.06	-.28	-.12	.28	-.24	-.08	.10	.12	-.18	-.06	.10
RPR1	-.14	.14	.05	.04	-.64	.91	-.29	.50	-.01	-.19	-.04	.29	.09	-.21	.19	.18	-.23	-.12	.22	.11	-.15
RPR2	-.13	.15	.07	.04	-.62	.89	-.31	.41	-.09	-.18	-.02	.27	.09	-.18	.20	.15	-.22	-.11	.19	.09	-.08
RPR3	-.13	.16	.05	.03	-.58	.91	-.30	.49	-.01	-.17	.00	.25	.08	-.18	.17	.19	-.24	-.07	.22	.11	-.09
RTC1	.10	-.15	-.07	.02	.37	-.29	.69	-.33	.17	.10	.01	-.16	-.04	.13	-.17	-.02	.18	.17	-.23	-.04	.12
RTC2	.16	-.25	-.18	-.04	.35	-.36	.79	-.49	.01	.12	.06	-.10	.02	.11	-.16	-.10	.14	.07	-.14	.01	.08
RTC3	.07	-.13	-.12	.05	.34	-.21	.73	-.25	.14	.09	.04	-.11	.01	.14	-.12	-.01	.20	.13	-.19	-.04	.10
RTC4	.08	-.27	-.35	.04	.28	-.16	.83	-.21	.07	.08	.03	-.07	.00	.06	-.06	.00	.05	.09	-.11	.03	.02
RTR1	-.10	.11	.05	.04	-.28	.44	-.33	.83	-.05	-.13	-.07	.16	.10	-.15	.15	.17	-.27	-.11	.23	.08	-.16
RTR2	-.12	.16	.08	.08	-.27	.40	-.37	.83	.01	-.11	-.04	.14	.04	-.15	.19	.13	-.18	-.07	.17	.05	-.13
RTR3	-.12	.14	.05	.08	-.29	.48	-.37	.87	-.03	-.13	-.05	.20	.08	-.14	.19	.20	-.27	-.14	.23	.08	-.16
OEX1	-.15	.23	-.06	.09	.03	-.02	.06	.01	.94	.09	.04	-.16	-.10	.08	-.20	.08	.24	.12	-.15	-.16	.04
OEX2	-.11	.16	-.05	.07	.04	-.05	.13	-.04	.91	.04	.04	-.16	-.05	.06	-.16	.03	.28	.13	-.19	-.10	.08
OEX3	-.14	.21	-.07	.07	.03	-.05	.11	-.04	.94	.06	.02	-.15	-.07	.06	-.19	.07	.27	.16	-.19	-.17	.03
OPCE1	.09	.16	-.03	.04	.23	-.19	.12	-.14	.07	.92	.59	-.59	-.40	.72	-.14	-.08	.20	.19	-.32	-.15	.15
OPCE2	.09	.17	-.06	.01	.24	-.14	.11	-.10	.07	.88	.61	-.57	-.37	.70	-.12	-.02	.17	.20	-.21	-.11	.09
OPCE3	.05	.14	-.03	.03	.27	-.21	.12	-.15	.05	.90	.56	-.59	-.41	.72	-.16	-.08	.20	.17	-.28	-.17	.09
OPCF1	.05	.16	.02	.04	.08	-.05	.05	-.07	.03	.65	.96	-.43	-.31	.71	-.09	-.05	.10	.20	-.14	-.04	.10
OPCF2	.05	.17	.03	.02	.03	.00	.04	-.04	.03	.62	.97	-.38	-.28	.66	-.05	-.04	.08	.19	-.12	-.04	.09
OPCF3	.03	.14	.02	.05	.05	-.01	.05	-.06	.04	.63	.96	-.41	-.32	.68	-.06	-.05	.10	.20	-.12	-.05	.07
OPRL1	-.09	-.16	.04	-.02	-.28	.27	-.11	.17	-.14	-.64	-.40	.94	.47	-.56	.17	.14	-.26	-.20	.47	.26	-.14
OPRL2	-.10	-.16	-.01	-.02	-.28	.26	-.10	.18	-.16	-.59	-.39	.92	.48	-.55	.16	.13	-.23	-.19	.45	.28	-.14
OPRL3	-.14	-.11	.02	-.04	-.32	.31	-.17	.20	-.16	-.57	-.38	.91	.44	-.53	.17	.13	-.27	-.23	.47	.25	-.15
OPRS1	-.18	-.19	.01	-.09	-.10	.09	.02	.07	-.07	-.41	-.29	.47	.95	-.39	.09	.10	-.10	-.14	.27	.62	-.06
OPRS2	-.11	-.19	.01	-.09	-.09	.08	.01	.09	-.06	-.39	-.27	.43	.94	-.37	.11	.06	-.11	-.11	.25	.62	-.02
OPRS3	-.15	-.18	.05	-.06	-.12	.09	-.03	.08	-.08	-.44	-.32	.50	.91	-.41	.11	.08	-.15	-.16	.25	.55	-.09
OPCS1	.07	.15	-.05	.03	.27	-.19	.14	-.15	.07	.70	.60	-.54	-.37	.89	-.14	-.07	.17	.22	-.19	-.12	.14
OPCS2	.05	.12	-.01	.04	.14	-.15	.09	-.16	.02	.65	.63	-.43	-.32	.83	-.11	-.07	.17	.17	-.18	-.12	.14
OPCS3	.08	.15	-.02	.05	.30	-.20	.12	-.13	.10	.70	.60	-.56	-.38	.87	-.16	-.04	.18	.25	-.22	-.15	.17
PUN1	-.04	-.02	.06	.05	-.16	.08	-.16	.12	-.20	-.14	-.11	.12	.09	-.16	.78	-.04	-.13	-.14	.14	.13	-.11
PUN2	.01	-.01	.06	.04	-.19	.21	-.10	.21	-.14	-.12	-.04	.16	.09	-.12	.86	.04	-.17	-.12	.14	.11	-.06
PUN3	.01	-.01	.07	.01	-.23	.22	-.14	.19	-.16	-.13	-.03	.17	.10	-.12	.88	.08	-.22	-.13	.19	.13	-.09
RPRO1	-.26	.07	-.07	.15	-.12	.20	.01	.14	.06	-.08	-.05	.15	.09	-.10	.02	.92	-.10	-.01	.09	.11	-.10
RPRO2	-.29	.08	-.04	.23	-.10	.15	-.05	.19	.08	-.05	-.04	.10	.05	-.03	.06	.86	-.13	-.06	.14	.08	-.13
RPRO3	-.24	.04	-.09	.18	-.12	.17	-.08	.19	.04	-.05	-.05	.13	.10	-.07	.03	.93	-.17	-.06	.14	.13	-.11
OTCE1	.04	.21	-.02	-.05	.10	-.26	.13	-.27	.23	.15	.07	-.21	-.11	.14	-.21	-.15	.87	.29	-.35	-.17	.25
OTCE2	.09	.26	.03	-.06	.10	-.12	.15	-.16	.26	.20	.09	-.24	-.11	.20	-.14	-.08	.84	.34	-.34	-.19	.27
OTCE3	.01	.17	-.01	-.02	.11	-.29	.13	-.30	.22	.18	.08	-.24	-.10	.16	-.20	-.15	.80	.29	-.37	-.17	.27
OTCF1	.03	.24	-.02	.00	.15	-.11	.14	-.10	.15	.20	.19	-.22	-.13	.24	-.16	-.05	.38	.90	-.27	-.16	.32
OTCF2	.02	.16	.00	-.03	.11	-.08	.10	-.11	.12	.16	.15	-.19	-.13	.17	-.13	-.03	.30	.90	-.18	-.14	.26
OTCF3	.07	.17	.00	.00	.14	-.10	.13	-.12	.12	.21	.22	-.18	-.14	.25	-.12	-.05	.33	.89	-.22	-.18	.28
OTRL1	-.08	-.15	.01	.03	-.14	.18	-.16	.22	-.18	-.27	-.10	.44	.25	-.19	.15	.11	-.40	-.19	.86	.35	-.20

	AGE	CPR	DIST	GEN	RPC	RPR	RTC	RTR	OEX	OPCE	OPCF	OPRL	OPRS	OPCS	PUN	RPRO	OTCE	OTCF	OTRL	OTRS	OTCS
OTRL2	-.15	-.17	.02	-.03	-.19	.21	-.19	.22	-.16	-.27	-.15	.43	.26	-.21	.19	.12	-.35	-.24	.88	.38	-.22
OTRL3	-.10	-.11	.06	-.05	-.19	.21	-.16	.20	-.15	-.24	-.08	.41	.19	-.18	.14	.11	-.34	-.20	.82	.27	-.12
OTRS1	-.17	-.20	-.02	-.07	-.09	.09	.01	.08	-.14	-.16	-.03	.27	.61	-.15	.12	.11	-.19	-.18	.39	.94	-.14
OTRS2	-.11	-.19	-.03	-.05	-.08	.10	.02	.08	-.13	-.12	-.04	.24	.60	-.12	.13	.13	-.18	-.14	.33	.93	-.10
OTRS3	-.16	-.22	-.01	-.04	-.11	.12	-.03	.07	-.17	-.17	-.05	.29	.59	-.16	.15	.10	-.22	-.18	.39	.94	-.14
OTCS1	.11	.18	.07	-.07	.14	-.14	.10	-.18	.08	.13	.08	-.15	-.07	.16	-.08	-.10	.31	.28	-.18	-.12	.84
OTCS2	.12	.11	.05	-.04	.09	-.12	.08	-.18	-.01	.12	.08	-.15	-.04	.17	-.12	-.11	.25	.21	-.19	-.11	.75
OTCS3	.13	.20	.10	-.02	.08	-.06	.06	-.10	.05	.07	.06	-.10	-.05	.11	-.06	-.10	.24	.30	-.17	-.11	.90

Appendix O

Common Method Bias (CMB)

Because data for each respondent were partly obtained using a single measurement method, procedural and statistical remedies to minimize and control for common method bias (CMB) were applied (Podsakoff et al. 2003). First, different measurement methods were employed to prevent the emergence common method variance in the first place. The exogenous or independent variables were not measured at all, but were created through the experimental manipulation that was hidden from the participant. The between-subjects design should prevent CMB caused by consistency motifs or implicit theories (Podsakoff et al. 2003). Second, the dependent variables of choice probability and willingness to pay were measured with different scale types that reduce vulnerability to method effects (Sharma et al. 2009). Third, the questions were checked during the qualitative pretest for items that could trigger a social desirability bias. Additionally, respondents were guaranteed anonymity to further reduce the potential of this bias (Podsakoff et al. 2003). Fourth, psychological separation between the measurement of the dependent and the independent variables was ensured to reduce remaining consistency tendencies. Fifth, as discussed, the questionnaire was carefully developed to minimize satisficing behavior.

Beyond procedural remedies to minimize common method variance, two statistical analytical methods were applied to control for its effects in the dataset: Harman's single-factor test and the marker variable technique (Lindell and Whitney 2001). Harman's single-factor test (Podsakoff et al. 2003) was conducted by a principal components factor analysis in SPSS on the Likert-scaled variables. The analysis revealed thirteen factors with eigenvalues above one, which accounted for 74.05% of the variance. The largest single factor accounted for 20.86% of the variance. Since no single factor emerged or accounted for the majority of the variance, Harman's single-factor test indicates that CMB did not influence the results (Malhotra et al. 2006). The marker variable technique was applied *post hoc* by using the second lowest correlation in the correlation matrix as a proxy for the magnitude of CMB (Malhotra et al. 2006). In this case, we used the correlation between offline transaction convenience and online transaction speed convenience, which can be assumed to be theoretically unrelated. This correlation was parceled out of the correlation matrix. However, significances among all primary constructs remained unchanged, signifying that CMB did not alter the results (Lindell and Whitney 2001). The corrected and uncorrected correlation matrices are shown in Table O1.

Table O1. Original Correlations

	CPR	RPC	RPR	RTC	RTR	OEX	OPCE	OPCF	OPRL	OPRS	OPCS	PUN	RPR	OTCE	OTCF	OTRL	OTRS
RPC	-.23**																
RPR	.17**	-.68**															
RTC	-.28**	.43**	-.33**														
RTR	.17**	-.33**	.52**	-.42**													
OEX	.22**	.03	-.04	.10**	-.02												
OPCE	.18**	.27**	-.20**	.13**	-.15**	.07											
OPCF	.16**	.05	-.02	.05	-.06	.03	.66**										
OPRL	-.15**	-.32**	.30**	-.13**	.19**	-.17**	-.65**	-.42**									
OPRS	-.20**	-.11**	.10**	.0004	.09*	-.08*	-.44**	-.31**	.50**								
OPCS	.16**	.27**	-.21**	.13**	-.17**	.07*	.79**	.71**	-.59**	-.41**							
PUN	-.01	-.23**	.21**	-.16**	.21**	-.20**	-.15**	-.07	.18**	.11**	-.16**						
RPR	.07	-.13**	.19**	-.05	.19**	.06	-.06	-.05	.14**	.09*	-.07	.04					
OTCE	.26**	.12**	-.25**	.16**	-.28**	.28**	.22**	.10**	-.28**	-.13**	.20	-.21**	-.15**				
OTCF	.21**	.15**	-.11**	.14**	-.12**	.15**	.21**	.21**	-.22**	-.15**	.24	-.15**	-.05	.37**			
OTRL	-.17**	-.20**	.23**	-.20**	.25**	-.19**	-.30**	-.13**	.50**	.27**	-.23	.19**	.14**	-.42**	-.25**		
OTRS	-.22**	-.10**	.11**	-.003	.08*	-.16**	-.16**	-.05	.29**	.64**	-.15	.15**	.12**	-.21**	-.18**	.40**	
OTCS	.20**	.12**	-.12**	.09**	-.18**	.05	.12**	.09*	-.15**	-.06	.17	-.10**	-.12**	.32**	.32**	-.22**	-.14**

Note: *$p < 0.05$, **$p < 0.01$; not significant otherwise.

Appendix P

Robustness Check

As a robustness check, we conducted a logistic regression using the upper third and the lower third of the sample sorted by choice probability as expression of strong preference for the online or for the offline channel and thereby derived a binary choice variable for the alternative model specification. The same independent variables went into the logistic regression. The results of this alternative model support our findings, with transaction speed (Wald $\chi^2 = 14.0$, $p < .001$), effort (Wald $\chi^2 = 22.5$, $p < .001$), and flexibility convenience (Wald $\chi^2 = 3.4$, $p < .05$) driving online channel choice. We also find a negative effect of transaction risk severity (Wald $\chi^2 = 5.0$, $p < .05$) and a positive influence of post-transaction speed convenience (Wald $\chi^2 = 2.8$, $p < .05$) on online channel choice, while all other independent variables did not yield significant results. Overall, the logistic model was highly significant ($\chi^2(17) = 247.88$, $p < .001$) and predicted 78.2% of the cases correctly, compared to the 50% that a null model could predict.

Appendix Q

Mediation Analysis

Table Q1. Mediation Analysis for Significant Paths

Independent Variable	Mediator	Dependent Variable	95% CI Indirect Effect	Significant Direct Effect?	Effect Consistent?	Type of Mediation (Zhao et al. 2010)
Pickup in Store (2 days)	Online Transaction Flexibility Convenience	Choice Probability	[-.0414; .3139]	YES	YES	Non-mediation
Pickup in Store (immediate)	Online Transaction Speed Convenience	Choice Probability	[.0214; .1816] *	NO	YES	Indirect-Only Mediation
Pickup in Store (immediate)	Online Transaction Flexibility Convenience	Choice Probability	[-.0419; .3239]	NO	YES	Non-mediation
Pickup in Store (immediate)	Online Transaction Risk Severity	Choice Probability	[.0035; .1957] *	NO	YES	Indirect-only Mediation
Service & Return in Store	Online Post-Transaction Speed Convenience	Choice Probability	[.0047; .6426] *	NO	YES	Indirect-only Mediation
Same Day Delivery	Online Transaction Speed Convenience	Choice Probability	[.1408; .5831] *	NO	YES	Indirect-only Mediation
Same Day Delivery	Online Transaction Flexibility Convenience	Choice Probability	[.0009; .1314] *	NO	YES	Indirect-only Mediation

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