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How Retailers Change Ordering Strategies When Suppliers Go Direct

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Abstract

This study empirically investigates whether and to what extent suppliers' decisions to start selling directly to end-consumers provoke reactions in the ordering strategy of downstream channel partners, such as independent multibrand retailers. Using a multimethod approach that combines transactional data, survey data, and a scenario-based experiment, the authors demonstrate that retailers tend to exit these relationships after a direct channel introduction, as exhibited by their strategic decisions to order fewer distinct SKUs, accompanied by higher wholesale prices per unit. On average, retailers decrease the number of distinct SKUs ordered by 15 (or 18.75%) and pay a higher average wholesale price by €0.79 (or 20.84%). Yet the responses also differ across retailers, reflecting moderating impacts of retailer power, expertise, and relationship quality. Retailer power emerges as a robust moderating factor, with more powerful retailers indicating a lower propensity to exit the relationship. Expertise and relationship quality have more nuanced influences on retailers' ordering strategies. The multimethod approach allows to reveal the underlying mechanisms of these moderating effects, such that both rational (coercive power and switching costs) and emotional (conflict and confidence) considerations are in play.

Keywords: Direct channel introduction, Dual distribution, Ordering strategy, B2B relationships, Retailer characteristics

Ecommerce growth and logistical challenges in increasingly crowded markets lead companies to rethink their distribution systems. In retailing for example, suppliers frequently supplement their indirect distribution channels (e.g., independent multibrand retailers) with direct channels, through which they sell directly to end-consumers, meaning they encroach on the retailers' sales terrain (Ailawadi 2021; Frazier 1999; Gielens and Steenkamp 2019; Tahirov and Glock 2022). Citing the significant growth of direct channels during the COVID-19 pandemic, eMarketer (2022) predicts direct channels to grow by around 17% in 2024. For retailers, direct channels represent a worrisome new form of competition (Ailawadi 2021; Sa Vinhas and Anderson 2005). As a result, a direct channel introduction can create channel conflict that might hamper collaborations between downstream (retailer) and upstream (supplier) partners (Ailawadi 2021; Sa Vinhas and Heide 2015; Tsay and Agrawal 2004).

Hirschman's (1970) seminal writing on behavioral responses when partner firms fail to live up to expectations suggests two likely reactions by the downstream partners to direct channel encroachment by the upstream partner: (1) (partially) disengage from the relationship by decreasing the quantity they order from the partner (i.e., *exit*) or (2) engage in constructive discussions with the partner to seek improved terms of trade (i.e., *voice*).¹ Analytical game theory research on disintermediation typically assumes a voice response: the supplier will reduce its wholesale price to limit the negative consequences on supplier-retailer relationships (e.g., Arya et al. 2007; Kumar & Ruan 2006) which potentially translates into a higher quantity ordered by retailers. However, input from several qualitative interviews with retailers on the topic of direct channels suggest an exit response could be possible too, such as "We order less variety. In the past, I bought a lot of exclusive products but I don't do that anymore [after the direct channel introduction]; I just order the basic products." Retailers may thus also (partially)

¹ Other research applying Hirschman's framework to dysfunctional acts in distribution channels has suggested a third possible reaction, called passive acceptance, such that retailers do not react at all (Hibbard, Kumar, and Stern 2001; Ping 1993). In our empirical analyses, such a reaction would show up as a null effect.

disengage from the exchange relationship by reducing the quantity ordered—an outcome not considered in analytical research. Therefore, our first goal is to empirically investigate which ordering strategy response of retailers dominates in case of a direct channel introduction.

Since retailer responses are expected to vary, our second goal is to investigate retailer heterogeneity in ordering strategy responses, which represents an unexplored topic in previous channel conflict and disintermediation literature. The qualitative interviews provide multiple illustrations of the relevance of cross-retailer differences; according to a representative of a small, mom-and-pop specialist store, “It would help if we could negotiate, but we are so small. We have no say.” In contrast, an interviewee of a large specialist chain, with multiple stores, explained, “We are not too worried about these direct channels. We believe that manufacturers need us, the multibrand retailers, as many consumers buy [products] in an experiential, emotional way.” Such diverse attitudes suggest the need for a more thorough understanding of the influence of retailer characteristics.

By investigating these research questions, we contribute to both literature on the broader phenomenon of *channel conflict* and literature on the specific act of *disintermediation* (Table 1). Although channel conflict literature acknowledges that (various forms of) conflict can affect various behavioral outcomes for the downstream partner (e.g., performance [Eshghi and Ray 2021; Hibbard, Kumar and Stern 2001], cooperation [Leonidou, Barnes and Talias 2006; Samaha, Palmatier and Dant 2011; Skinner, Gassenheimer and Kelley 1992], repurchase intentions [Cronin and Morris 1989], or opportunistic behavior [Sa Vinhas and Heide 2015]), we know of no empirical studies that have investigated the impact of channel conflict on a downstream channel member’s ordering strategy. The few studies that investigate exit versus voice responses to distribution channel conflict use survey data (Hibbard, Kumar, and Stern 2001; Ping 1993) and do not empirically link such responses to encroachment or specific ordering strategy components.

Table 1. Literature Review^a

Reference	Type of conflict		Study type	Ordering strategy component under study				Retailer heterogeneity	Underlying mechanisms of ordering strategy responses
	Disintermediation	Other		Wholesale price	Quantity ordered ^b	# distinct SKUs	Total order value		
Cronin & Morris 1989		✓	Empirical						
Deleersnyder et al. 2002	✓		Empirical						
Hibbard et al. 2001		✓	Empirical					✓	
Leonidou et al. 2006		✓	Empirical						
Ping 1993		✓	Empirical					✓	
Samaha et al. 2011		✓	Empirical					✓	
Sa Vinhas & Anderson 2005	✓		Empirical					✓	
Sa Vinhas & Heide 2015	✓		Empirical					✓	
Skinner et al. 1992		✓	Empirical						
Gielens & Steenkamp 2019	✓		Conceptual						
Hirschman 1970		✓	Conceptual					✓	
Arya et al. 2007	✓		Analytical	✓	✓				
Cai 2010	✓		Analytical	✓	✓			✓	
Cai et al. 2009	✓		Analytical	✓	✓			✓	
Cattani et al. 2006	✓		Analytical	✓	✓				
Chiang et al. 2003	✓		Analytical	✓	✓				
Dumrongsiri et al. 2008	✓		Analytical	✓	✓			✓	
Hotkar & Gilbert 2021	✓		Analytical	✓	✓				
Hua et al. 2010	✓		Analytical	✓	✓				
Kumar & Ruan 2006	✓		Analytical	✓	✓			✓	
Li et al. 2014	✓		Analytical	✓	✓			✓	
Rodríguez & Aydin 2015	✓		Analytical	✓	✓ (/SKU)	✓			
Tsay & Agrawal 2004	✓		Analytical	✓	✓				
Xiong et al. 2012	✓		Analytical	✓	✓				
Xu et al. 2012	✓		Analytical	✓	✓				
Yoo & Lee 2011	✓		Analytical	✓	✓				
Zhang et al. 2019	✓		Analytical	✓	✓			✓	
This study	✓		Empirical	✓	✓ (/SKU)	✓	✓	✓	✓

^a In this table, we focus on behavioral reactions of downstream channel members to channel conflict, and limit the discussion to disintermediation by a supplier that focuses on the ordering strategy of downstream channel partners. For broader perspectives, we refer to Eshghi and Ray (2021) for the channel conflict literature and Tahirov and Glock (2022) for the disintermediation literature.

^b We equate consumer demand at the retailer with quantity ordered. We also flag when the quantity ordered *per SKU* (/SKU) was considered and not the total quantity ordered (where no distinction can be made between the number of distinct SKUs ordered or the number of orders per SKU).

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Retailers' ordering strategy components, and more specifically the wholesale price, constitute important elements in a large stream of analytical game theory literature on disintermediation and includes a voice response as a core assumption (e.g., Cai 2010; Chiang, Chhajed, and Hess 2003; Yoo and Lee 2011). However, perceived conflict with a supplier may also induce a retailer to (partially) exit the relationship. By empirically testing which ordering strategy response is more likely in response to a direct channel introduction, we substantially contribute to this prior research. Furthermore, we not only include wholesale price and quantity ordered as separate ordering strategy components (which is typical in analytical literature) but also decompose the latter by measuring both the number of distinct SKUs ordered *and* the order quantity per SKU. These metrics provide further, more precise information about the exact response tactics used by retailers.

Finally, both channel conflict and disintermediation literature emphasize the important role of retailer heterogeneity, though they provide only scattered insights. With this research, we seek to specify how changes in ordering strategy responses differ among retailers, by empirically investigating relevant moderators and the mechanisms that might underlie the moderating effects. Both retailer heterogeneity and these underlying mechanisms represent research angles that have remained unexplored in prior literature.

Our multimethod approach spans three studies. In the main study (Study 1A), we analyze transactional order data from more than 2,500 retailers, using a difference-in-differences approach, to determine how the launch of an own webshop by a large German toy supplier affected the retailers' ordering strategy responses, on average and moderated by retailer characteristics. We decompose their ordering strategy responses into distinct ordering strategy components, to create a detailed picture of these reactions. Specifically, we assess the direct channel impact on the number of distinct SKUs ordered, the order quantity per SKU, and the wholesale price per unit, which together result in the total order value (in euro). Changes

in these ordering strategy components are informative of an exit versus voice response. In Study 1B, we add data from a survey conducted among the retailers before the direct channel introduction to replicate the Study 1A findings using perceptual measures to operationalize key moderating retailer characteristics. Finally, in Study 2, we run a scenario-based experiment to validate the moderation findings and investigate the underlying mechanisms.

Across all three studies, we find that the average response to a direct channel introduction is an exit response. On average, retailers (partially) disengage from the relationship. They decrease the number of distinct SKUs ordered in the period after the direct channel introduction by 15 (or 18.75%, considering average orders of 80 distinct SKUs before) and pay a higher average wholesale price, by € .79 (or 20.84%, relative to an average wholesale price per unit of €3.79 in the period before). This empirical finding contrasts with the typical voice assumption in analytical game theory literature on disintermediation, and has important implications for suppliers that are considering whether to launch a direct channel.

Yet we also clarify that not all retailers respond the same way. All three studies provide clear evidence that power is the most important driver of ordering strategy responses. Powerful retailers are less likely to exit than less powerful retailers. Relationship quality has a substantially lower effect than might have been expected, based on prior literature (e.g., Anderson and Narus 1990; Hibbard, Kumar, and Stern 2001). It exerts a minimal impact on the change in ordering strategy components in the transactional studies. The results regarding expertise, finally, are ambiguous: We find a significant decrease in the number of distinct SKUs ordered (in line with an exit strategy) for expert retailers in Study 1A but could not replicate this result in Study 1B (which is based on a smaller sample). In Study 2, we show that this may be due to countervailing mechanisms. Study 2 explores the underlying mechanisms that explain the moderating impact of power, expertise, and relationship quality, and shows that both

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1
2
3 rational (i.e., perceived switching costs and coercive power) and emotional mechanisms (i.e.,
4
5 perceived confidence and conflict) drive their effects.
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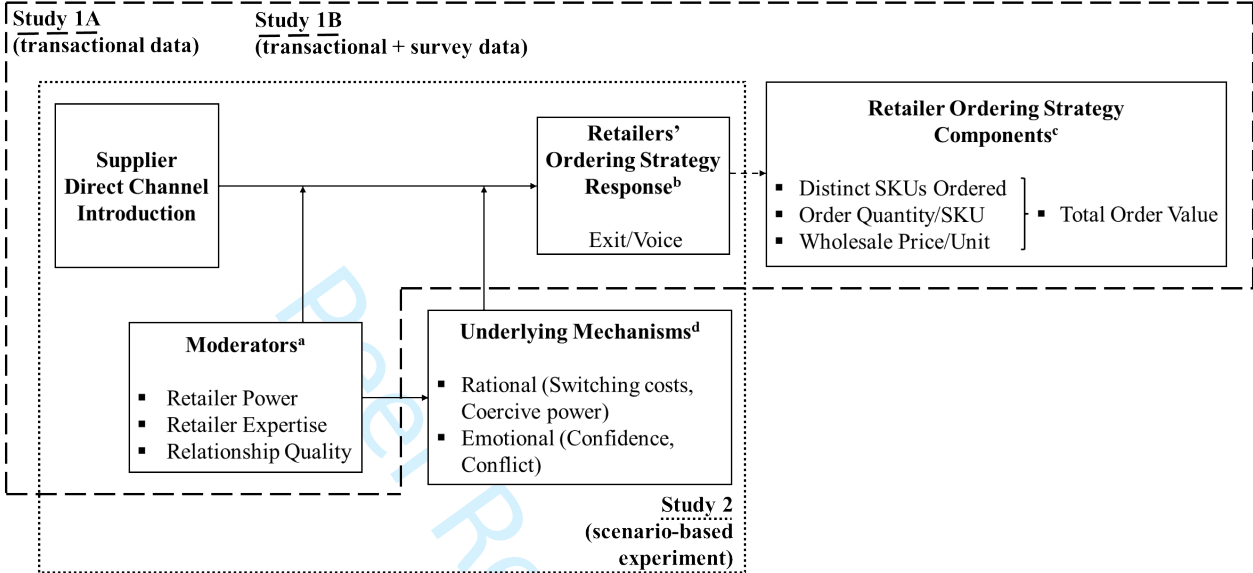
7
8 These nuanced insights not only fill gaps in prior literature but also offer valuable
9
10 recommendations for practice, by helping suppliers predict which retailers are more likely to
11
12 exit or express a voice response. Then, when launching their direct channel, suppliers can take
13
14 an informed, segmented approach to avoid backlash from their retailer partners. In particular,
15
16 focusing on less powerful (and expert) retailers is well warranted. To the best of our knowledge,
17
18 we are the first to explore the mechanisms that underlie these effects. These provide important
19
20 insights into which elements practitioners should emphasize in their communications with
21
22 retailers when they introduce their own direct channel.
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28 29 30 31 32 **Conceptual Framework**

33 We test the conceptual framework in Figure 1 using multiple studies, as detailed previously. In
34
35 Studies 1A and 1B, we test the impact of a direct channel introduction on ordering strategy
36
37 responses using transactional order data. In these studies, we measure exit versus voice
38
39 responses via changes in the average wholesale price per unit, the number of distinct SKUs
40
41 ordered, and the order quantity per SKU, which together determine changes in the total order
42
43 value (in euro). We also address potential moderating impacts of retailer power, expertise, and
44
45 relationship quality (measured with transactional data in Study 1A and both transactional and
46
47 survey data in Study 1B). Then the scenario-based experiment in Study 2 allows us to replicate
48
49 the effect of the three moderators and explore the potential underlying mechanisms. In the
50
51 following sections, we first provide theoretical arguments for the main effect of a direct channel
52
53 introduction on retailers' ordering strategy responses and its consequences on ordering strategy
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components, and then discuss the potential moderating impact of the retailer characteristics, thereby building on the underlying mechanisms.

Figure 1. Conceptual Framework



^a Derived from transactional data in Study 1A, derived from transactional and survey data in Study 1B, and manipulated with scenarios in Study 2.

^b Derived from survey data in Study 2, and proxied by ordering strategy components in Studies 1A and 1B.

^c Derived from transactional data in Studies 1A and 1B.

^d Derived from survey data in Study 2.

Impact of a Direct Channel Introduction on Retailers' Ordering Strategy Responses

Retailers may see the supplier's decision to add a direct channel as a threat to their own business (Hibbard, Kumar, and Stern 2001), in that it gives rise to intrabrand competition and lost sales (Frazier 1999; Sa Vinhas and Anderson 2005; Sa Vinhas and Heide 2015). Retailers also may feel as if they are being unfairly treated by the supplier, which is now not only a partner but also a competitor (Arya, Mittendorf, and Sappington 2007; Kumar and Ruan 2006; Tsay and Agrawal 2004). According to Hirschman (1970), two retailer responses to such encroachment are likely: exit or voice.

First, multibrand retailers can decide to (partially) *exit* the exchange after a direct channel introduction. Such a response expresses a unilateral decision to shift resources to the brands of other suppliers. If they allocate less shelf space to the focal supplier (Ailawadi and Farris 2020; Kumar and Ruan 2006), they would order less quantity from the supplier. This

would translate in fewer distinct SKUs ordered and/or a diminished order quantity per SKU. Moreover, if retailers order substantially smaller quantities, it also could alter the terms of the agreement with the supplier, which might lead to higher wholesale prices (Stern and El-Ansary 1992). The net effect on total order value depends on whether the positive wholesale price offsets the negative impact on quantity ordered.

Second, retailers might communicate with the supplier, in their attempts to alter the exchange conditions. Such a *voice* response may be triggered if the retailer wants compensation for the supplier's advantage of receiving the products at cost, without having to pay any additional margin that is added to the retailer's price (Arya, Mittendorf, and Sappington 2007). If this competitive advantage is not counterbalanced, it creates an unequal playing field that may reduce retailers' demand for the focal supplier's products (Frazier 1999; Tsay and Agrawal 2004). One way to do so is to lower the wholesale price for retailers, to avoid diminished demand (Chiang, Chhajed, and Hess 2003; Tsay and Agrawal 2004) and ensure retailers' continued selling effort (Arya, Mittendorf, and Sappington 2007; Kumar and Ruan 2006). Alternatively, constructive discussions might lead to improved order conditions (e.g., more exclusives, faster deliveries, quicker access to innovations) or more faith in the direct channel's potential synergetic effects, all of which might encourage retailers to increase the number of distinct SKUs ordered and/or the order quantity per SKU (Chiang, Chhajed, and Hess 2003; Tsay and Agrawal 2004). The net effect on the total order value is again unclear given that the potential positive and negative effects may counterbalance.

In conclusion, there are two potential retailers' ordering strategy responses in a disintermediation context. The impact of an exit response on ordering strategy components (i.e., fewer distinct SKUs ordered, lower order quantity per SKU, and/or higher wholesale price per unit) is the opposite of what we expect with a voice response (i.e., lower wholesale price, more distinct SKUs ordered, and/or greater order quantity per SKU). Both scenarios are equally

likely to happen, so we cannot predict a priori which one dominates in our empirical context and instead leave it to empirics.

Moderating Effect of Retailer Characteristics

Prior research on relationship continuity suggests that both more rational, calculative assessments and more emotional, affective assessments can inform decisions to maintain an exchange relationship (Geyskens et al. 1996). When retailers take a more rational, calculative view, they assess whether they have forces, threats, or other forms of coercion (*coercive power*) to stimulate the supplier to improve trading terms, as well as whether there are any *switching costs* that may form a barrier to disengagement. Retailers are more likely to respond with a voice reaction if they perceive their own coercive power, because the ability to force a supplier to comply, increases their chance of obtaining better trading terms (Brown, Lusch, and Nicholson 1995; Hirschman 1970). Retailers with larger switching costs are less likely to exit the relationship, considering how much they depend on and are locked in with the supplier (Hirschman 1970; Weiss and Anderson 1992).

When retailers take a more emotional, affective view, they assess whether they want to maintain the exchange relationship, depending on whether it feels good to do so. If *confidence* in the partner prevails, retailers likely approach the supplier to get better trading terms, reflecting a firm belief that the supplier will be supportive and concerned about the retailer's future (Kumar, Scheer, and Steenkamp 1995). If *conflict* prevails instead, an environment of anger, frustration, resentment, and hostility increases the chances that retailers seek to leave the hostile environment (Kumar, Scheer, and Steenkamp 1995).

In line with Hirschman (1970), social exchange, and relationship marketing literature (Cook and Emerson 1978; Ganesan 1994; Morgan and Hunt 1994), we identify three moderators that influence these rational and emotional mechanisms: retailer power, retailer

expertise, and the quality of the retailer's relationship with the supplier. Below, we argue how these moderators steer the underlying mechanisms and formulate hypotheses on their effect on the likelihood of the *exit* response in terms of the ordering strategy components.² The likelihood of exiting the relationship is opposite to the likelihood of expressing voice, in that these ordering strategy responses translate into opposite expectations for the ordering strategy components.

Power. When retailers find themselves in a relatively better power position in the exchange with the supplier, they are able to get more done from the supplier (Hirschman 1970; Palmatier et al. 2020). From a rational perspective, powerful retailers can readily use force, threats, and other forms of coercion to achieve their preferred outcome. They have more business assets, giving them a competitive advantage over competitors and channel partners (Barney 1991; Chang and Gotcher 2010). In turn, they might demand better terms of trade after the supplier undertakes the direct channel introduction, which makes a voice response more likely than an exit response. From an emotional perspective, powerful retailers also should be more likely to express voice, because they have more confidence the supplier will be concerned about their welfare and willing to respond with understanding (Kumar, Scheer, and Steenkamp 1995). Moreover, they may perceive less channel conflict and regard the direct channel as less of a threat (Ailawadi et al. 2010; Gielens et al. 2008). We predict:

H1. More powerful retailers are less likely to respond to the direct channel introduction with an exit response than less powerful retailers, implying (a) a more positive change in the number of distinct SKUs ordered, (b) a more positive change in the order quantity per SKU, and/or (c) a more negative change in the wholesale price per unit.

² For the ordering strategy components, we provide directional hypotheses on the moderating effects for the number of distinct SKUs ordered, the order quantity per SKU, and the wholesale price per unit. The moderating effect on total order value (in euro) is hard to hypothesize beforehand as it depends on the net effect of the different ordering strategy components that may go in opposite directions.

Expertise. Retailers that specialize in a specific category develop category expertise, which is relevant to their service quality and can provide a key differentiating feature (Draganska and Klapper 2007). Category expertise adds to the retailers' intellectual property and leaves retailers less dependent on the supplier to provide knowledge to consumers (Dhar and Hoch 1997). A manufacturer cannot afford to be absent from expert retailers' assortments, in the sense that it wants to be associated with the sophisticated, high-quality products these retailers typically provide. But expert retailers cannot exclude brands of (important) manufacturers and still maintain their reputation as the go-to retailer in this market. Thus, expert retailers may incur more switching costs, despite having some coercive power as well.

In terms of emotional mechanisms, expert retailers likely perceive more channel conflict, because the direct channel introduction threatens their core business, and they cannot divert to other business sources, compared to generalists who have a wider array of products from different sectors. Hence, on the one hand, expert retailers possess coercive power and perceive more channel conflict which may increase their likelihood of exiting the relationship. On the other hand, their high switching costs may prevent them from being able to do so. Noting these contradicting forces, we do not advance a hypothesis about the moderating impact of expertise and leave it to empirics.

Relationship quality. Between partners, relationship quality reflects the confidence and genuine interest that one party has in the other (Palmatier et al. 2020); its importance in business exchanges has long been underscored (e.g., Anderson and Weitz 1992; Hibbard, Kumar, and Stern 2001). Partners with high relationship quality generally view the relationship favorably, which makes them more devoted (Ganesan 1994; Wu, Chen, and Chen 2015), and willing to work out disagreements (Anderson and Narus 1990; Hibbard, Kumar, and Stern 2001).

From a rational perspective, retailers with stronger relationships have invested a lot of energy and time in building them, so the switching costs are typically high, which motivates

these retailers to deal with the cognitive inconsistency that arises if their partner exhibits destructive behavior, to preserve their existing, positive beliefs (Eslami, Kacker, and Hibbard 2019). From an emotional perspective, retailers with a stronger relationship have more confidence in the partner's actions (Grégoire and Fisher 2006), which leaves them more likely to interact in a constructive way to try to find solutions to problems in the exchange (Ganesan 1994; Hibbard, Kumar, and Stern 2001). What is more, partners with strong relationships likely regard an unfavorable act by a partner as a single occurrence that is part of doing business, rather than blaming the partner for the negative outcome (Vidal 2012, 2014), so they may be less likely to perceive channel conflict. Therefore, we predict:

H2. Retailers that have a stronger relationship with the supplier are less likely to respond to the direct channel introduction with an exit strategy than retailers with a weaker relationship, implying (a) a more positive change in the number of distinct SKUs ordered, (b) a more positive change in the order quantity per SKU, and/or (c) a more negative change in the wholesale price per unit.

To test these hypotheses, we present three different studies. Table WA.1 in Web Appendix A provides an overview.

Study 1A: Impact of Direct Channel Introduction using Transactional Data

With Study 1A, we test the impact of the direct channel introduction on retailers' ordering strategy components and the moderating effects of retailer power, expertise, and relationship quality, using transactional data from a quasi-natural experiment.

Research Setting and Data

We study the introduction of a direct channel by a large, German, single-brand toy supplier. The supplier has a well-established brand name and market position in the toy industry (ranked seventh in Germany).³ The brand is sold in more than 50 countries, though its most lucrative regions include France, the United Kingdom, Spain, North America, and Germany. Historically, the company operated through independent multibrand retailers only, but in June and July 2017, it introduced its own webshops in France and the United Kingdom, respectively. With this direct channel, the supplier aimed to “have more brand control and [to generate sales so that] it essentially self-finances its marketing.” Other than these two countries and Germany (where the supplier introduced a direct channel well before our observation window), the toy supplier continued to operate exclusively through indirect distribution channels in all other countries during our observation window.

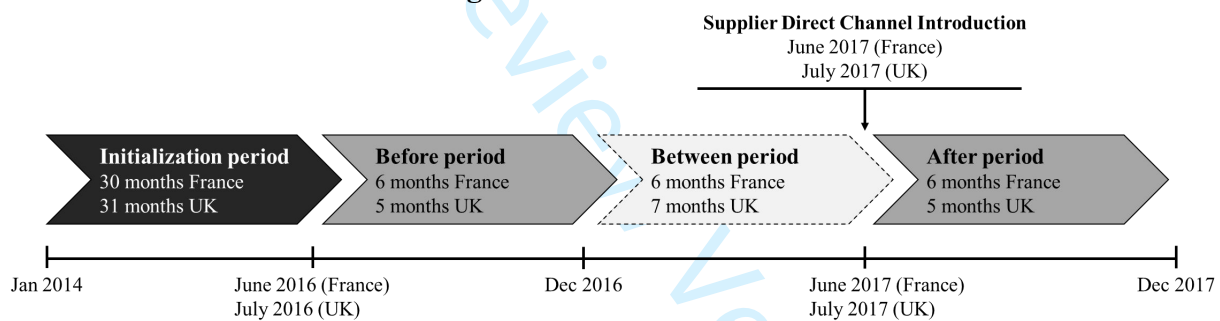
The supplier initially also planned (but did not announce) to add a direct channel in Spain during our observation window. However, due to budgetary constraints, this plan was postponed (until long after the timeframe of this research). In this sense, Spain constitutes an interesting control country. Because access to each country’s direct channel was restricted to consumers residing in that country, Spanish end-consumers could not order from the direct channels introduced in the United Kingdom or France (or Germany). Yet the supplier indicated Spain was similar to the other two countries in the marketing support received, the competitive standing of the focal supplier, the competitive structure of the toy category, and the regulatory and institutional environment. We provide further empirical proof of the similarity between treated and control retailers subsequently.

The supplier provided transactional, monthly, SKU-level data about orders placed (i.e., total order value in euro and the identity and quantity of all SKUs ordered) by all retailers

³ Due to confidentiality agreements, we cannot to reveal the company’s name.

in France, the United Kingdom, and Spain. Our data cover January 2014–December 2017, so they include the direct channel introductions in France (June 2017) and the United Kingdom (July 2017). We compare the different components of the retailers' ordering strategies in the months after the direct channel introduction (after period) to the same months one year earlier (before period). We use the same months of the year in the before and after period in our analyses to account for potential seasonality. Because the direct channel was introduced one month earlier in France, the after/before periods include six months for France and five months for the United Kingdom. The months preceding the before period constitute an initialization period. We exclude observations of the between period, that is, after the end of the before period but before the start of the after period.⁴ Figure 2 summarizes the different time windows.

Figure 2. Time Windows



We retain retailers that ordered products from the focal supplier in the before and the initialization period, to ensure we have sufficient data to operationalize several variables in the model. We do not place restrictions on ordering in the after period. The final sample consists of 2,625 retailers: 1,438 from France, 529 from the United Kingdom, and 658 from Spain. For each retailer, we calculate one aggregate measure for the before period and one for the after period (see “Measures” section). Of the 2,625 observed retailers, 374 did not place any orders in the after period. For these retailers, we cannot calculate the wholesale price in the after period and hence have a missing value for that component. Therefore, the total number of observations

⁴ In the “Robustness Checks” section, we detail the substantively robust results when we include the between period as part of the before period to compare the after period with the full year before the direct channel introduction.

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equals 5,250 for our analysis of the number of distinct SKUs ordered, order quantity per SKU, and total order value, but it is 4,876 for the analysis of the wholesale price per unit.

Measures

Ordering strategy components. We use the transactional order data to operationalize the ordering strategy components for the before and after periods. Following Shi et al. (2017), we calculate one aggregate measure for the before period and one for the after period for each component as follows:⁵ (1) the *number of distinct SKUs* is the number of different SKUs ordered by retailer *r* from the focal supplier in period *t*, (2) the *order quantity per SKU* is the total number of units ordered by retailer *r* in period *t* from the focal supplier, divided by the number of distinct SKUs ordered in that period by that retailer; and (3) the *wholesale price* per unit is the total euro value ordered by retailer *r* from the focal supplier in period *t*, divided by the total number of units ordered by that retailer in that period. Multiplying (1), (2), and (3) leads to (4) the *total order value* in euro by retailer *r* from the focal supplier in period *t*. To account for a priori cross-retailer differences in the magnitude of the ordering strategy components, we divide all ordering strategy components by their value in the initialization period (in line with Cleeren, van Heerde, and Dekimpe [2013], and Van der Maelen, Breugelmans, and Cleeren [2017]).⁶

Moderating retailer characteristics. We use transactional order data from the initialization period (to avoid reverse causality concerns) and internal information from the

⁵ The average time between two orders in our data is 3.05 months. Therefore, studying orders at a monthly level would result in an inflation of zeroes for the quantity ordered variables and would lead to many missing values for the wholesale price (if there is no order, we cannot retrieve the wholesale price per unit). In the “Robustness Checks” section, we establish that our results are substantively robust when using a quarter-level model.

⁶ To determine the value of each ordering strategy component during the initialization period, we first calculate the monthly average of the total order value, the number of distinct SKUs ordered, the order quantity per SKU, and the wholesale price per unit across the whole initialization period. For the former two, we then aggregate the monthly average to a measure that corresponds to a 6-month (France) or 5-month (United Kingdom) period. For the latter two, we keep the monthly average. In the “Robustness Checks” section, we present the substantively robust results when we do not transform the dependent variables.

focal supplier to operationalize the moderators. As measures of power, we consider both the size of the retailer and the extent to which the supplier depends on the retailer for its sales (Palmatier et al. 2020). We operationalize *retailer size* as the number of physical stores of retailer *r* in the initialization period. We operationalize *supplier dependence* as retailer *r*'s total order value in the initialization period divided by the market's total order value in that period. To operationalize retailer expertise, we use a contrast-coded dummy variable that indicates whether a retailer *r* is a *specialist* (with toys as its core business, equaling 1) or a generalist (offering other categories too, equaling -1), based on internal information from the focal supplier. Finally, as a measure of relationship quality, we consider the retailer's *order frequency*, in line with Palmatier et al. (2006), operationalized as retailer *r*'s average number of purchase incidences per month in the initialization period. Tables WB.1 and WB.2 in Web Appendix B contain the variable operationalizations, descriptive statistics, and correlations.

Balance and Model-Free Evidence

To verify whether retailers in France and the United Kingdom (treatment group) exhibit a similar ordering strategy as retailers in Spain (control group) before the direct channel introduction, Table 2 shows the differences in the dependent variables between both groups. As the last column indicates, the standardized mean differences (SMDs) all fall below the threshold of .25, indicating a good balance between the two groups (Ho et al. 2007; Shi et al. 2017). In Table WC.1 in Web Appendix C, we affirm that the SMDs for the untransformed ordering strategy components also fall below this threshold. Thus, the Spanish retailers can be considered a good control group for isolating the effect of the direct channel introduction.

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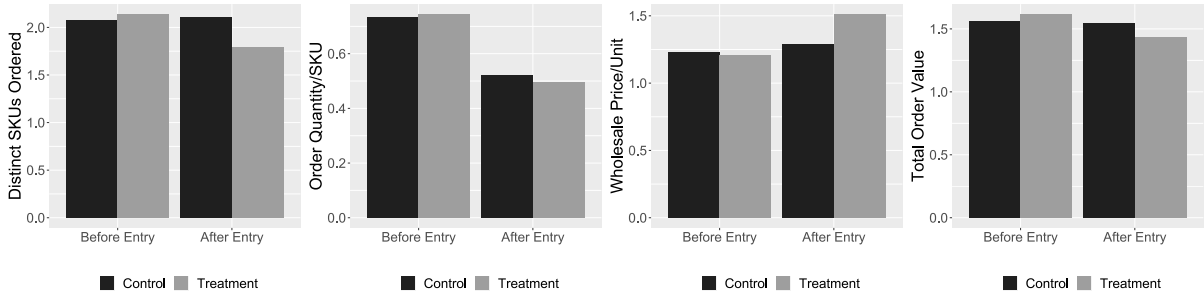
Table 2. Mean Differences Between Control and Treatment Groups, Study 1A

	Control		Treatment		Mean Δ	<i>p</i> of Mean Δ^a	SMD ^b
	M	SD	M	SD			
Number of distinct SKUs	2.08	1.86	2.14	4.24	.06	(.718)	.015
Order quantity /SKU	.73	.39	.74	.78	.01	(.706)	.015
Wholesale price /unit	1.23	1.71	1.21	.97	-.03	(.625)	-.027
Total order value	1.56	1.77	1.62	2.43	.05	(.598)	.022

^aStatistical significance of group mean difference t-test.
^bStandardized mean difference (= difference in means between treatment and control group divided by standard deviation of the treatment group).

Figure 3 provides visual descriptive statistics on the dependent variables for the treatment and control group before and after the direct channel introduction. This figure and corresponding group mean difference t-tests (reported in brackets) provide model-free evidence that the number of distinct SKUs ordered ($\Delta = -.35, p < .001$), order quantity per SKU ($\Delta = -.24, p < .001$), and total order value ($\Delta = -.18, p < .001$) decreased (more) in the treatment group compared to the control group (respectively, $\Delta = .03, p = .730$; $\Delta = -.21, p < .001$; $\Delta = .03, p = .878$). Moreover, the wholesale price per unit increased among the treatment group ($\Delta = .31, p < .001$); it did not change significantly in the control group ($\Delta = .05, p = .463$). This model-free evidence implies an exit response.

Figure 3. Before–After Comparison of Ordering Strategy Components for Control and Treatment Group



Method

For each of the four ordering strategy components, we use a panel difference-in-differences model (Shi et al. 2017) as specified in Equation 1:

$$(1) OSC_{rt}^{S*} = \beta_0^S + \beta_1^S Treatment_r + \beta_2^S After_t + \beta_3^S Treatment_r \times After_t + \gamma_r + \varepsilon_{rt}^S$$

where OSC_{rt}^{S*} is the transformed ordering strategy component S of retailer r in period t , and t equals the after or before period.⁷ The treatment dummy variable ($Treatment_r$) equals 1 for treated (France and the United Kingdom) retailers and 0 for control (Spain) retailers. The after dummy variable ($After_t$) equals 1 in the period after the direct channel introduction and 0 in the period before. We include random effects (γ_r) and clustered standard errors on the retailer level to control for time-invariant unobserved heterogeneity across retailers. As the main coefficient of interest, β_3^S reflects the general difference in ordering strategy component S in the after compared with before period for the direct channel introduction for the treatment group only. It thus captures the treated retailers' reaction to the direct channel introduction.

To determine if the impact of the direct channel entry depends on retailer power, expertise, or relationship quality, we extend Equation 1 with interaction terms between $Treatment_r \times After_t$ and the moderating retailer characteristics. We also add the main effects for the moderators in vector M_r and all relevant lower-order interactions with M_r , in Equation 2:

$$(2) OSC_{rt}^{S*} = \beta_0^S + \beta_1^S Treatment_r + \beta_2^S After_t + \beta_3^S Treatment_r \times After_t + \sum_{n=1}^4 \beta_{3+n}^S M_r + \beta_8^S Treatment_r \times After_t \times Size_r + \beta_9^S Treatment_r \times After_t \times SupplierDependence_r + \beta_{10}^S Treatment_r \times After_t \times Specialist_r + \beta_{11}^S Treatment_r \times After_t \times RelationshipQuality_r + \sum_{n=1}^4 \beta_{11+n}^S Treatment_r \times M_r + \sum_{n=1}^4 \beta_{15+n}^S After_t \times M_r + \gamma_r + \epsilon_{rt}^S$$

Results on the Impact of a Direct Channel Introduction

The results of Equation 1 are shown in Table 3. Our main parameters of interest (β_3^S) reveal that the supplier's decision to introduce a direct channel results in a significant decrease in the number of distinct SKUs ordered ($\beta_3^{Distinct\ SKUs} = -.380; p < .01$), and a significant increase in the wholesale price per unit ($\beta_3^{Wholesale\ price/unit} = .250; p < .05$). The latter does not

⁷ We compute the after and before values of the ordering strategy components in Spain using the introduction date for France (June 2017). The results remain robust when we use the introduction date for the United Kingdom.

compensate for losses in quantity ordered; the total order value significantly decreases ($\beta_3^{Order\ value} = -.166; p < .05$). The decrease in order quantity per SKU following the direct channel introduction is also negative but not significant ($\beta_3^{Quantity/SKU} = -.038; p = .335$).

The decrease in the number of distinct SKUs ordered, coupled with an increase in wholesale price per unit, indicate an exit response. Hence, in line with the model-free evidence, these results confirm that on average, retailers (partially) disengage from the relationship. Although game theory-inspired studies of *vertical* channel competition suggest a voice response, such that wholesale prices can be renegotiated to maintain the retailer’s effort and avoid any diminishment in retailers’ demand from the focal supplier (Arya, Mittendorf, and Sappington 2007; Tsay and Agrawal 2004), our empirical analysis suggests that retailers (partially) disengage from the partnership by ordering fewer distinct SKUs, which might allow them to allocate less shelf space to the supplier and shift their resources to other suppliers.

Table 3. Panel Difference-in-Differences Analyses Results (Equation 1), Study 1A

	Number of distinct SKUs			Order quantity / SKU			Wholesale price / unit			Total order value		
	B	SE	p	B	SE	p	B	SE	p	B	SE	p
Intercept	2.076	.072	.000 ***	.732	.015	.000 ***	1.232	.067	.000 ***	1.562	.069	.000 ***
Treatment	.061	.120	.608	.012	.023	.607	-.026	.070	.707	.054	.088	.537
After	.035	.075	.641	-.211	.035	.000 ***	.056	.069	.420	-.016	.065	.807
Treatment x After	-.380	.118	.001 ***	-.038	.039	.335	.250	.115	.030 **	-.166	.081	.041 **
χ^2	19.5716 .000 ***			210.262 .000 ***			16.6948 .001 ***			15.557 .001 ***		
N	5,250			5,250			4,876			5,250		

* $p < .1$; ** $p < .05$; *** $p < .01$.

The decrease in the number of distinct SKUs ordered suggests that retailers chose to invest in fewer product(line)s. Prior game-theoretic research on *horizontal* channel competition indicates that retailers might increase their competitiveness by reducing the assortment variety to only the most popular items (Dukes, Geylani, and Srinivasan 2009). We verify whether retailers in our empirical setting have followed a similar strategy and hence chose to offer fewer but more popular SKUs. To test this premise, we rank each SKU (using total unit sales from the before and between periods), from most to least sold across all retailers. Then, for each

retailer, we compare the average ranking of SKUs ordered in the after period against the average ranking of SKUs ordered in the before period using a paired samples t-test across all retailers per country. The average ranking number across SKUs ordered decreased significantly in the after period in the United Kingdom and France (both $p < .01$) but not in Spain ($p > .10$). This indicates that retailers in the treatment group appear to have chosen to order the more popular, better selling SKUs rather than lower selling SKUs.⁸

Robustness Checks

We ran several additional analyses to verify the robustness of our results (Table 4). First, we checked if the results change if we limit the sample of control retailers to a matched sample (rather than the complete sample we use in the main analyses), in which we match with replacement on the dependent variables, using nearest neighbor matching. This method identifies a retailer in the control group that is closest to a retailer in the treatment group on a logistic distance measure (Column 1). Second, we test whether our results hold when using untransformed ordering strategy components as dependent variables (Column 2) or when log-transforming the untransformed ordering strategy components (Column 3). Third, we test the robustness of our results to an alternative specification of the before period, such that we add the between period and consider the full year instead of the same months one year earlier (Column 4). We also compare the results of the two-period (before and after) panel model of Equation 1 with those of a quarterly panel model, where OSC_{rt}^{S*} is the transformed ordering strategy component S of retailer r in quarter t (where $t_{\max} = 6$ for France and $t_{\max} = 5$ for the United Kingdom) (Column 5). In this model, we take advantage of the quarterly frequency to account for potential seasonality and to match with replacement on the first and second

⁸ We also checked the change in the percentage of top 200 (top 100, top 50) units ordered after versus before the direct channel introduction. These percentages significantly increased for treated but not for control retailers.

moments of the dependent variables, using nearest neighbor matching (see Web Appendix D for more details). Fourth, to account for potential differences in direct channel introduction effects across the two treated countries, we test a model that includes a dummy variable equal to 1 for U.K. retailers and 0 otherwise (Column 6; see Web Appendix D for more details).

The results of these alternative specifications are substantively robust to our focal findings: Direct channel introduction, on average, is associated with an exit response that comprises fewer retailer orders and increased wholesale prices. However, the average SMDs across ordering strategy components for these alternative specifications are substantially higher than the average SMD of our focal model, which confirms the appropriateness of the chosen model specification.

We also report a falsification test in Web Appendix D (Table WD.3), in which we impose a placebo event and pretend the online direct channel introduction happened one year before its actual introduction. Results show that the responses in ordering strategy components for the placebo event are substantively different from those estimated for the true direct channel introduction. This falsification test thus shows that the changes in retailers' ordering strategies in response to the true event are not driven by a preexisting trend in the before period.

Results on the Moderating Effect of Retailer Characteristics

Shifting our attention to cross-retailer variation in the impact of a direct channel introduction, we present the results of Equation 2 in Table 5. The variance inflation factors (VIF) in the four estimated models are well below the recommended threshold of 10 (Hair et al. 2017), so multicollinearity is not a concern.

Table 4. Robustness Checks of Panel Difference-in-Differences Analyses Results (Equation 1), Study 1A

	[1] Focal Model with Nearest Neighbor Matching			[2] Untransformed Dependent Variables			[3] Log-transformed Dependent Variables			[4] One-year Before Period			[5] Quarterly Panel Model with Nearest Neighbor Matching ^a			[6] Controlling for Country ^b		
	B	SE	p	B	SE	p	B	SE	p	B	SE	p	B	SE	p	B	SE	p
Number of distinct SKUs																		
Intercept	2.120	.040	.000 ***	66.410	2.083	.000 ***	3.905	.033	.000 ***	4.054	.127	.000 ***	1.409	.075	.000 ***	2.305	.106	.000 ***
Treatment	.017	.104	.868	13.380	2.536	.000 ***	.154	.039	.000 ***	.019	.186	.920	-.096	.100	.336	-.062	.145	.672
After	-.005	.040	.896	3.394	1.473	.021 **	-.333	.053	.000 ***	-1.517	.104	.000 ***	.055	.059	.351	-.071	.106	.505
Treatment x After	-.340	.099	.001 ***	-11.561	1.745	.000 ***	-.135	.061	.027 **	-.391	.162	.016 **	-.196	.079	.013 **	-.323	.141	.022 **
Order quantity per SKU																		
Intercept	.748	.010	.000 ***	9.630	1.685	.000 ***	2.046	.018	.000 ***	.740	.013	.000 ***	1.806	.076	.000 ***	.703	.032	.000 ***
Treatment	-.004	.020	.839	.693	1.973	.726	.042	.021	.046 **	.051	.022	.018 **	-.222	.091	.015 **	.028	.020	.161
After	-.214	.023	.000 ***	-2.701	1.726	.118	-.429	.029	.000 ***	-.217	.034	.000 ***	.036	.158	.819	-.170	.046	.000 ***
Treatment x After	-.034	.030	.253	-.570	2.006	.776	-.006	.034	.849	-.078	.038	.043 **	-.410	.161	.011 **	-.060	.037	.110
Wholesale price per unit																		
Intercept	1.269	.038	.000 ***	3.980	.220	.000 ***	1.470	.015	.000 ***	1.274	.060	.000 ***	1.227	.044	.000 ***	1.190	.070	.000 ***
Treatment	-.063	.044	.152	-.187	.243	.442	-.021	.017	.214	-.101	.062	.107	-.078	.045	.082 *	-.004	.072	.956
After	.040	.041	.321	.244	.203	.230	.140	.013	.000 ***	.014	.063	.829	.015	.039	.706	-.130	.095	.172
Treatment x After	.267	.101	.008 ***	.526	.302	.081 *	.021	.016	.180	.324	.111	.004 ***	.367	.080	.000 ***	.348	.143	.015 **
Total order value																		
Intercept	1.651	.040	.000 ***	306.631	835.992	.000 ***	6.955	.043	.000 ***	2.801	.115	.000 ***	1.468	.072	.000 ***	1.577	.088	.000 ***
Treatment	-.035	.068	.609	355.976	927.610	.701	.175	.050	.000 ***	.049	.140	.726	-.068	.083	.411	.046	.097	.634
After	-.094	.037	.011 **	-646.086	636.503	.310	-.777	.094	.000 ***	-1.253	.081	.000 ***	.104	.061	.087 *	.015	.054	.782
Treatment x After	-.087	.061	.154	535.811	716.568	.455	-.116	.108	.282	-.162	.097	.093 *	-.040	.072	.575	-.048	.052	.360

* $p < .1$; ** $p < .05$; *** $p < .01$.^a Coefficient for a seasonal variable is included in Web Appendix D, Table WD.1.^b Coefficient for the main effect of the country variable and its interaction effect are included in Web Appendix D, Table WD.2.

Table 5. Panel Difference-in-Differences Analysis Results with Moderation (Equation 2), Study 1A

	Number of Distinct SKUs			Order Quantity/SKU			Wholesale Price/Unit			Total Order Value		
	B	SE	P	B	SE	p	B	SE	p	B	SE	p
Intercept	2.038	.067	.000 ***	.710	.013	.000 ***	1.143	.043	.000 ***	1.451	.054	.000 ***
Treatment	.110	.126	.381	.035	.020	.076 *	.052	.047	.265	.170	.077	.026 **
After	.046	.067	.493	-.173	.033	.000 ***	.123	.049	.012 **	.025	.055	.646
Size	.001	.000	.127	.000	.000	.277	.001	.000	.004 ***	.001	.000	.002 ***
Supplier Dependence	5.853	1.114	.000 ***	-.218	.792	.783	-.003	.684	.997	1.870	2.003	.350
Specialist	-.034	.093	.712	.006	.012	.628	.094	.052	.068 *	-.020	.067	.765
Relationship Quality	-.396	.281	.159	-.712	.050	.000 ***	-.106	.147	.474	-1.620	.236	.000 ***
Treatment x After	-.398	.122	.001 ***	-.076	.037	.039 **	.204	.116	.080 *	-.208	.075	.005 ***
Treatment x After x Size	.002	.001	.038 **	.0004	.000	.040 **	.001	.001	.458	.002	.001	.000 ***
Treatment x After x Supplier Dependence	-13.601	2.601	.509	-1.417	3.347	.672	-3.204	7.164	.655	-3.181	9.063	.726
Treatment x After x Specialist	-.475	.160	.003 ***	-.003	.034	.923	-.025	.097	.794	-.241	.087	.006 ***
Treatment x After x Relationship Quality	.747	.774	.334	.226	.168	.178	.027	.497	.957	.731	.417	.080 *
Treatment x Size	-.001	.001	.456	.000	.000	.456	-.001	.000	.005 ***	-.002	.001	.003 ***
After x Size	-.002	.000	.000 ***	.000	.000	.079 *	-.001	.000	.138	-.002	.000	.000 ***
Treatment x Supplier Dependence	41.107	23.362	.079 *	5.400	3.851	.161	1.283	1.734	.460	33.773	15.930	.034 **
After x Supplier Dependence	-12.971	.749	.000 ***	-.386	.281	.170	.738	6.612	.911	-4.030	.631	.000 ***
Treatment x Specialist	.147	.168	.383	.065	.025	.010 **	.051	.058	.378	.250	.096	.009 ***
After x Specialist	.391	.086	.000 ***	-.035	.024	.149	-.076	.063	.225	.213	.058	.000 ***
Treatment x Relationship Quality	-1.161	.806	.150	-.168	.128	.188	-.268	.189	.157	-1.329	.429	.002 ***
After x Relationship Quality	.364	.283	.199	.397	.114	.001 ***	-.079	.184	.666	.237	.243	.331
χ^2	70.241		.000 ***	495.465		.000 ***	37.1226		.007 ***	253.987		.000 ***
N	5,250			5,250			4,876			5,250		

* $p < .1$; ** $p < .05$; *** $p < .01$.

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Based on Hirschman (1970), we predict in H1 that the more powerful a retailer, the less likely it should be to exit the exchange following a direct channel introduction. We affirm that larger retailers decrease the number of distinct SKUs ordered and the order quantity per SKU less than do smaller retailers (H1_a: $\beta_8^{Distinct\ SKUs} = .002, p < .05$; H1_b: $\beta_8^{Order\ Quantity} = .0004, p < .05$) in response to the direct channel introduction. Although a less negative change in total order value also occurs for larger compared with smaller retailers ($\beta_8^{Order\ Value} = .002, p < .001$), we find no significant effect of retailer size on the change in wholesale price (H1_c: $\beta_8^{Wholesale\ price/unit} = .001, p = .458$). Overall, larger retailers are less likely to exit than smaller retailers, in line with our predictions. Beyond retailer size, we also consider the extent to which the supplier depends on the retailer for its sales as a measure of power, but we find no significant moderating effect on changes in any ordering strategy components (H1_a: $\beta_9^{Distinct\ SKUs} = -13.601, p = .509$; H1_b: $\beta_9^{Quantity/SKU} = -1.416, p = .672$; H1_c: $\beta_9^{Wholesale\ Price/unit} = -3.204, p = .655$; $\beta_9^{Order\ Value} = -3.181, p = .726$).

Expert retailers decrease the number of distinct SKUs ordered more than do generalist retailers ($\beta_{10}^{Distinct\ SKUs} = -.475, p < .01$), exerting a more negative effect on the change in total order value ($\beta_{10}^{Order\ Value} = -.241, p < .01$). Yet we find no significant effect of retailer expertise on changes in order quantity per SKU ($\beta_{10}^{Quantity/SKU} = -.025, p = .794$) or changes in the wholesale price per unit ($\beta_{10}^{Wholesale\ Price/unit} = -.003, p = .923$). Although we did not offer a hypothesis, these results indicate that experts have a greater tendency to exit the relationship than do generalists.

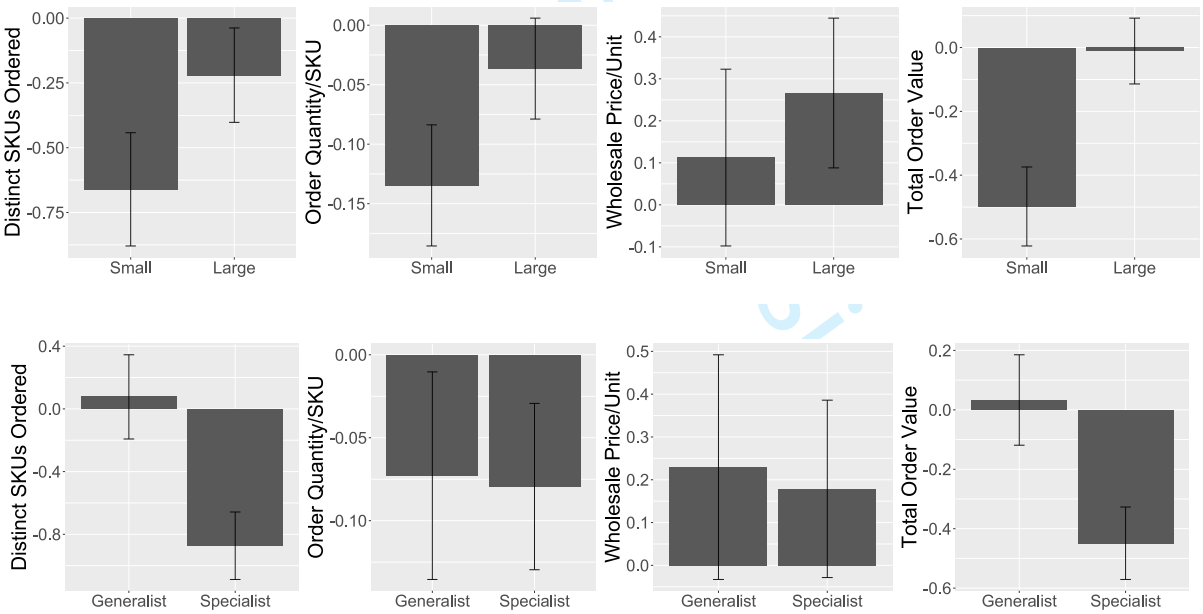
Finally, we hypothesized that retailers that have strong relationships with the supplier are less likely to exit the exchange following a direct channel introduction. However, rejecting H2_{a,b,c}, we find no significant moderating impact of relationship quality on any ordering strategy components (H2_a: $\beta_{11}^{Distinct\ SKUs} = .747, p = .334$; H2_b: $\beta_{11}^{Quantity/SKU} = .226, p = .178$; H2_c: $\beta_{11}^{Wholesale\ Price/unit} = .027, p = .957$). Relationship quality appears less protective to

disengagement than theory would suggest. Still, it has a (marginally) positive effect on the change in total order value ($\beta_{11}^{Order\ Value} = .731, p < .10$).

Marginal Effects

To understand the economic significance of the moderation, we use the estimates from Table 5 to calculate its marginal effects, which we display in Figure 4 for moderators that are significant in relation to at least one of the ordering strategy components (number of distinct SKUs ordered, order quantity per SKU, and wholesale price per unit). In line with Lim, Tuli, and Dekimpe (2018), we calculate the change in ordering strategy components for “small” (i.e., 25th percentile) and “large” retailers (i.e., 75th percentile). For retailer expertise, we use the contrast-coded values of the dummy variable.

Figure 4. Impact of Retailer Size and Expertise on Δ in Ordering Strategy Components



Notes: Error bars are at ± 1 SE, which is derived through the delta method.

In line with the findings of Table 5, Figure 4 indicates that large retailers decrease the number of distinct SKUs ordered and order quantity per SKU substantially less than do small retailers, yet the change in wholesale price does not differ significantly. Together, these changes translate into a significant decrease in total order value for small retailers but an insignificant change in total order value for large retailers. Specialists decrease the number of

distinct SKUs ordered; generalists do not. Although we find no significant difference in the change in order quantity per SKU or wholesale price, the total order value for specialists decreases significantly following the direct channel introduction, whereas that of generalists is not affected.

Discussion

In Study 1A, we rely on transactional data to analyze a large sample of 2,625 retailers that make up the supplier's retail market in France, the United Kingdom, and Spain. As the results show, an exit response dominates, such that on average, retailers (partially) disengage from the exchange after a direct channel entry. This empirical observation advances analytical game theory research on vertical channel entries, which mostly assumes that wholesale prices decrease and thus a voice response. Still, we identify cross-retailer variation, such that smaller retailers and experts (partially) exit the relationship. Our results, however, do not confirm the moderating effects of supplier dependence (measure of retailer power) or relationship quality.⁹

In Study 1A, we relied on transactional measures while in channel conflict research these constructs often are measured perceptually (e.g., Geyskens and Steenkamp 2000; Kumar, Scheer, and Steenkamp 1995). To rule out the possibility that the (non-significant) moderation findings might be driven by the measure we used, in Study 1B, we supplement the transactional order data with primary survey data, collected from the retailers before the direct channel introduction described in Study 1A.

⁹ Web Appendix D presents alternative transactional operationalizations of supplier dependence and relationship quality for Study 1A. We find robust results for both, as detailed in Tables WD.4 and WD.5.

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Study 1B: Impact of Direct Channel Introduction using Transactional and Survey Data

The goal of Study 1B is to replicate the findings of Study 1A by using perceptual measures to operationalize some of the moderating retailer characteristics, for which we used proxies based on transactional data in Study 1A. To do so, we leverage the same quasi-natural experimental setting, involving the direct channel introduction in the toy sector as for Study 1A, and supplement the transactional data with survey data.

Approach and Data

We distributed the surveys in March 2017, when retailers were unaware that the supplier was planning to introduce a direct channel. The surveys went to each retailer’s primary contact (the supplier provided the contact details), usually senior-level managers. We reminded non-responders up to three times to increase the response rate. In total, we sent 2,856 survey invitations via e-mail and obtained valid survey data for 238 retailers (133 from France, 62 from the United Kingdom, and 43 from Spain), for a response rate of 8.3%.¹⁰ Similar to Study 1A, our sample consists of retailers who ordered products from the focal supplier in the before and in the initialization period. We again did not put restrictions on ordering in the after period. After excluding incomplete questionnaires, we retained 149 retailers in the treatment group: 106 in France and 43 in the United Kingdom.^{11,12}

¹⁰ To account for a potential nonresponse bias linked to our survey data, we check the robustness of our results using a Heckman approach (see Web Appendix E for more details). The results remain robust.

¹¹ Because 29 of these retailers and/or their matches (see “Method” section) did not order after the direct channel introduction, we cannot calculate the change in wholesale price/unit for these retailers.

¹² We checked whether the results from Study 1A (Equation 1) hold for the smaller sample of 149 treated responders (in comparison to all 658 Spanish control retailers). The results remain largely robust for the ordering strategy components. The number of distinct SKUs ordered decreases (though the p -value is slightly higher; $\beta_3^{Distinct\ SKUs} = -.218, p = .11$), the wholesale price per unit increases significantly ($\beta_3^{Wholesale\ price/unit} = .188, p < .05$), and the order quantity per SKU is not significantly affected ($\beta_3^{Quantity/SKU} = .074, p > .10$). These results do not translate into a significant effect on order value ($\beta_3^{Order\ value} = -.093, p > .10$).

Measures

In the survey, we questioned retailers about their exchange with the supplier using validated multi-item (seven-point Likert) scales (for details, see Web Appendix F), with which we collect perceptual measures of supplier dependence and relationship quality, that is, the two moderators for which we did not find significant moderating effects in Study 1A. Specifically, we measure retailers' perceptions of the *supplier's dependence* on the retailer, using scales from Kumar, Scheer, and Steenkamp (1995). Following Eslami, Kacker, and Hibbard (2019) and Hibbard, Kumar, and Stern (2001), we use a composite measure of *relationship quality* that consists of trust, affective commitment, and satisfaction, measured using scales from prior research (Geyskens and Steenkamp 2000; Kumar, Scheer, and Steenkamp 1995). The combined measure provides a more accurate assessment of relationship strength (Crosby, Evans, and Cowles 1990; De Wulf and Odekerken-Schröder 2001; Palmatier et al. 2006). We also consider the *retailer's dependence* on the supplier, as an additional indicator of retailer power. Due to the lack of data, we could not operationalize this variable using transactional data in Study 1A. The Cronbach's alphas for all constructs are well above the commonly used threshold of .7 (Churchill 1979). We average across items for each construct. The transactional order data are still used to operationalize the four ordering strategy components, *retailer size*, and retailer expertise (*specialist*), as described in Study 1A. Tables WB.1 and WB.3 in Web Appendix B provide an overview of the different variable operationalizations, the descriptive statistics, and the correlations.

Method

Because this study features a much smaller set of treated responders, it is essential to match each retailer in the treatment group with a similar retailer in the control group. This way, we aim to ensure that retailers in the treatment group resemble the retailers in the control group as closely as possible, such that our transactional data resemble data from random

experimentation (Shi et al. 2017). We use the nearest neighbor matching algorithm and match retailers on the four transformed dependent variables (number of distinct SKUs ordered, order quantity per SKU, wholesale price per unit, and total order value), measured in the before period and operationalized as explained in Study 1A. We sample without replacement. Table 6 contains the values of these dependent variables for the control and treatment group; it indicates a good balance, with all SMDs below .25 (Ho et al. 2007).

Table 6. Mean Differences Between Control and Treatment Group, Study 1B

	Control		Treatment		Mean	<i>p</i> of Mean	SMD ^b
	M	SD	M	SD	Δ	Δ ^a	
Number of distinct SKUs	2.19	2.03	2.05	1.08	-.14	(.325)	-.13
Order quantity /SKU	.76	.37	.73	.53	-.03	(.552)	-.05
Wholesale price /unit	1.06	.33	1.17	.60	.11	(.041) **	.19
Total order value	1.85	2.72	1.84	3.58	-.01	(.970)	.00

^aStatistical significance of group mean difference t-test.
^bDifference in means between treatment and control group divided by standard deviation of the treatment group.

Because the set of retailers from Spain for which we have both transactional and survey data is limited (38), we cannot use difference-in-differences models, as we did in Study 1A; such a specification would result in a very small number of control observations. Therefore, we rely on a *change* model (Cleeren, van Heerde, and Dekimpe 2013) and concentrate on the difference between the treated and matched control retailer in terms of the change in transformed ordering strategy components, after versus before the direct channel. For each matched pair (retailer r_t from the treatment group and matched retailer r_c from the control group), and per ordering strategy component S , we specify:

$$(3) \Delta OSC_{r_t}^{S*} - \Delta OSC_{r_c}^{S*} = \beta_0^S + \beta_1^S \text{Size}_{r_t} + \beta_2^S \text{Supplier Dependence}_{r_t} + \beta_3^S \text{Retailer Dependence}_{r_t} + \beta_4^S \text{Specialist}_{r_t} + \beta_5^S \text{Relationship Quality}_{r_t} + \epsilon_{r_t}^S$$

where $\Delta OSC_{r_t}^{S*}$ and $\Delta OSC_{r_c}^{S*}$ refer to the difference in the transformed ordering strategy component after minus before the direct channel introduction for the treated and matched control retailer, respectively.

Results

We summarize the results in Table 7. The VIFs in the four estimated models are well below the recommended threshold of 10 (Hair et al. 2017), so multicollinearity is not a concern.

Table 7. Change Model Analyses Results (Equation 3), Study 1B

	Number of Distinct SKUs			Order Quantity/SKU			Wholesale Price/Unit			Total Order Value		
	B	SE	p	B	SE	p	B	SE	p	B	SE	p
Intercept	-.244	.163	.137	.124	.058	.035 **	.010	.097	.918	-.117	.193	.544
Size	.002	.001	.090 *	.001	.000	.204	.001	.001	.175	.003	.001	.050 *
Supplier Dependence	.359	.128	.006 ***	.059	.046	.201	.078	.081	.342	.301	.152	.049 **
Retailer Dependence	-.266	.150	.079 *	-.069	.054	.199	.094	.098	.339	-.203	.178	.256
Specialist Relationship	-.206	.166	.216	-.041	.059	.487	.090	.098	.361	-.147	.196	.454
Quality	-.112	.202	.579	-.064	.072	.379	-.094	.119	.432	-.112	.239	.640
R ²	.087			.042			.052			.061		
N	149			149			120			149		

* $p < .1$; ** $p < .05$; *** $p < .01$.

In line with the moderation results of Study 1A, retailer power is the dominant force that steers changes in retailers' ordering strategies. Now operationalized as a perceptual measure, we find that retailers that perceive that the supplier depends on them display a smaller decrease in the number of distinct SKUs ordered ($H1_a$: $\beta_2^{Distinct SKUs} = .359, p < .01$). No significant impact emerges for the change in order quantity per SKU ($H1_b$: $\beta_2^{Quantity/SKU} = .059, p = .201$) or wholesale price ($H1_c$: $\beta_2^{Wholesale Price/unit} = .078, p = .342$), but the effect on the change in total order value is significantly positive ($\beta_2^{Order Value} = .301, p < .05$). The opposite is true for retailers that perceive that they depend on the supplier; they reveal a greater decrease in the number of distinct SKUs ordered ($H1_a$: $\beta_3^{Distinct SKUs} = -.266, p < .10$). Here again though, we find no significant impact on the change in order quantity per SKU ($H1_b$: $\beta_3^{Quantity/SKU} = -.069, p = .199$) or wholesale price ($H1_c$: $\beta_3^{Wholesale Price/unit} = .094, p = .339$), nor in total order value ($\beta_3^{Order Value} = -.203, p = .256$). The results of Study 1B also confirm the positive effect of retailer size on the change in the number of distinct SKUs ordered ($H1_a$: $\beta_1^{Distinct SKUs} = .002, p < .10$) and total order value ($\beta_1^{Order Value} = .003, p < .10$). The impact on the change in order quantity per SKU ($H1_b$: $\beta_1^{Quantity/SKU} = .001, p = .204$) and wholesale

price (H1_c: $\beta_1^{Wholesale Price/unit} = .001, p = .175$) is not significant. Overall, we find no support for H1_b or H1_c, yet the support for H1_a confirms our hypothesis that powerful retailers are less likely to exit the relationship.

The results of Study 1B also confirm the results of Study 1A that relationship quality has a substantially weaker effect than expected. Even with a more direct, perceptual measure of relationship quality, it does not moderate the change in any ordering strategy components (H2_a: $\beta_5^{Distinct SKUs} = -.112, p = .579$; H2_b: $\beta_5^{Quantity/SKU} = -.064, p = .379$; H2_c: $\beta_5^{Wholesale Price/unit} = -.094, p = .432$). We thus reject H2_{a-c}. Relationship quality also does not affect total order value ($\beta_5^{Order Value} = -.112, p = .640$).

Finally, specialists do not differ significantly from generalists when we consider the changes in any of their ordering strategy components ($\beta_4^{Distinct SKUs} = -.206, p = .216$; $\beta_4^{Quantity/SKU} = -.041, p = .487$; $\beta_4^{Wholesale Price/unit} = .090, p = .361$; $\beta_4^{Order Value} = -.147, p = .454$). This is in contrast with Study 1A where we did find that retailer expertise had a significant moderating role.

Discussion

The results of Study 1B largely replicate the findings of our main Study 1A. Power dominates, such that retailers with less power (because they are smaller or depend more on the supplier and/or the supplier depends less on them) are more likely to (partially) exit the relationship, interestingly again mostly through the number of distinct SKUs ordered. Relationship quality does not have an important role, even when it is measured perceptually. It is interesting to observe that in our setting, the average value of relationship quality is notably modest, with limited variation across retailers (4.49 on a 7-point Likert scale, SD = .82; Table WB.1 in Web Appendix B). This mediocre, homogeneous value of relationship quality might explain our findings. In Study 2, we manipulate relationship quality in an experiment, thereby creating clearer weak versus strong relationship quality conditions. Finally, whereas expertise was

significant in Study 1A, it did not exert a significant effect in Study 1B. We anticipated that two countervailing mechanisms might influence the moderating role of specialists, that is, they experience high switching costs that prohibit exit while also suffering high levels of conflict that stimulate exit. In our Study 1A sample, the conflict effect seemed to dominate the switching cost effect; specialist retailers were more likely to exit. In the smaller sample of Study 1B, we did not find a significant moderating effect of expertise, suggesting that neither effect dominates. We discuss this ambiguous result further in our scenario-based experiment in Study 2 in which we also explicitly explore the role of the underlying mechanisms.

Study 2: Scenario-Based Experiment

Study 2 is a scenario-based experiment in which we aim to replicate the effects of retailer power, expertise, and relationship quality investigated in Studies 1A and 1B, by manipulating the high versus low values of each moderator. In addition, we use this scenario-based experimental study to explore the mechanisms and reveal the processes underlying retailers' responses to a direct channel introduction.

Approach and Data

This scenario-based experiment consists of a between-subject design. We manipulate retailer power (high versus low), retailer expertise (specialist versus generalist), and relationship quality (close versus not close) in eight scenarios.¹³ The scenario, manipulations, and measures are in Web Appendix G. Participants had to assume the role of purchasing manager for a retail chain of toy stores. The scenario indicated that a supplier, with a well-established brand name

¹³ We pretested the scenarios among a sample of 34 participants who were similar in profile to the final sample. These participants read the scenarios and rated (100-point scales) how much power they judged the firm to have, how knowledgeable the firm is about the toys category, and how good the quality of the relationship is. The results confirmed the success of our manipulations (all $p < .01$).

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and market position in the toy industry, recently had decided to introduce a direct channel. The participants also read that there were multiple qualified suppliers in the market, which implies it is possible to exit the relationship. Subsequently, we manipulated retailer power, expertise, and relationship quality, as shown in Web Appendix G. The dependent variable of interest is the likelihood that the retail chain exits the relationship as the ordering strategy response to the focal supplier's direct channel introduction (based on Hibbard et al. 2001).¹⁴ As underlying mechanisms, we measure the retailer's sense of coercive power (based on Brown, Lusch, and Nicholson [1995]), switching costs (based on Weiss and Anderson [1992]), confidence in the partner's actions, and channel conflict (both based on Kumar, Scheer, and Steenkamp [1995]), given the direct channel introduction. These are the rational and emotional mechanisms that we used to derive the hypotheses for the moderators.

837 participants enrolled in a business economics program at a large university completed the experiment for course credit. We report Cronbach's alphas for all the measured constructs in Web Appendix G. For some measures, we could improve the Cronbach's alpha value by dropping one of the statements, which we did. Factor analyses confirmed the validity of the retained constructs (see Table WB.1 in Web Appendix B for descriptive statistics and Table WB.4 for correlations).

Method and Results

To test the hypothesized relationships between retailer characteristics and the likelihood to exit the relationship after a direct channel introduction, as well as the potential mediating effects of our focal mechanisms, we rely on a path analysis using structural equation modeling. To investigate the effect of three retailer characteristics through four mediators, we needed to estimate 19 structural paths. The path model demonstrated good fit ($\chi^2(6) = 123.166$, goodness-

¹⁴ As a robustness check, we measure the likelihood of a voice response and find substantively robust results for the moderators.

of-fit index = .958, confirmatory fit index = .739, root mean square residual = .054). Table 8 displays the path coefficients of (1) the direct effect of each retailer characteristic and mediator on the likelihood to exit, (2) the indirect effect of each retailer characteristic on the likelihood to exit through each mediator, and (3) the total effect, which is the sum of the direct and indirect effects of each retailer characteristic on the likelihood to exit.

Table 8. Path Analysis of Regression Parameters: Direct, Indirect, and Total Effects

			B	SE	p
Direct Effects of Retailer Characteristics					
Retailer Power	→ Exit		-.159	.081	.049 **
Retailer Expertise	→ Exit		-.006	.077	.935
Relationship Quality	→ Exit		-.221	.079	.005 ***
Direct Effects of Mediators					
Coercive Power	→ Exit		.103	.035	.003 ***
Switching Costs	→ Exit		-.064	.032	.044 **
Confidence	→ Exit		-.198	.041	.000 ***
Conflict	→ Exit		.313	.045	.000 ***
Indirect Effects of Retailer Characteristics via Mediators					
Retailer Power	→ Coercive Power	→ Exit	.078	.028	.005 ***
Retailer Power	→ Switching Costs	→ Exit	-.000	.007	.973
Retailer Power	→ Confidence	→ Exit	-.073	.022	.001 ***
Retailer Power	→ Conflict	→ Exit	-.002	.024	.949
Retailer Expertise	→ Coercive Power	→ Exit	.004	.010	.686
Retailer Expertise	→ Switching Costs	→ Exit	-.022	.013	.086 *
Retailer Expertise	→ Confidence	→ Exit	.006	.015	.675
Retailer Expertise	→ Conflict	→ Exit	.052	.023	.022 **
Relationship Quality	→ Coercive Power	→ Exit	-.010	.010	.340
Relationship Quality	→ Switching Costs	→ Exit	-.020	.012	.099 *
Relationship Quality	→ Confidence	→ Exit	-.084	.022	.000 ***
Relationship Quality	→ Conflict	→ Exit	-.013	.022	.553
Total Effect of Retailer Characteristics					
Retailer Power	→ Exit		-.156	.084	.062 *
Retailer Expertise	→ Exit		.034	.082	.677
Relationship Quality	→ Exit		-.348	.082	.000 ***
N			837		

*** $p < .01$, ** $p < .05$, * $p < .10$.

Notes: Standard errors are bootstrapped and based on 500 replications.

According to the total effects of the retailer characteristics, we find that retailer power has a significant negative effect on the likelihood to exit the relationship ($\beta_{Power}^{Total} = -.156$; $p < .10$), in line with H1 and with the results of Studies 1A and 1B. We also find that retailers that have a close relationship with the supplier are less likely to disengage from the relationship ($\beta_{RQ}^{Total} = -.348$; $p < .01$). Hence, while we did not find support for H2 in Studies 1A and 1B, we confirm this hypothesis in Study 2, in which we manipulated rather than measured

relationship quality and the construct thus had a clear high versus low value. In line with Study 1B but in contrast with our results in Study 1A, we do not find a significant total effect of expertise on the likelihood to exit ($\beta_{Expertise}^{Total} = .034; p = .677$).

We rely on the results involving the indirect effects to explore the underlying mechanisms. First, powerful retailers have more coercive power, which increases the chance of an exit response ($\beta_{Power\ via\ Coercive}^{Indirect} = .078; p < .01$), but the aggregate negative impact of power is driven by greater confidence in the supplier ($\beta_{Power\ via\ Confidence}^{Indirect} = -.073; p < .01$). For relationship quality, we find that its negative impact on exit is driven by both higher switching costs ($\beta_{RQ\ via\ Switching}^{Indirect} = -.020; p < .10$) and more confidence in the supplier ($\beta_{RQ\ via\ Confidence}^{Indirect} = -.084; p < .01$). Finally, for retailer expertise, the evidence indicates two countervailing mechanisms. On the one hand, expertise leads to higher switching costs, decreasing the likelihood of exit ($\beta_{Expertise\ via\ Switching}^{Indirect} = -.022; p < .10$). On the other hand, expert retailers perceive more channel conflict than generalists following the direct channel introduction, which increases this likelihood ($\beta_{Expertise\ via\ Conflict}^{Indirect} = .052; p < .05$). These countervailing mechanisms cancel each other out, which explains the non-significant effect of expertise on the likelihood to exit.

Discussion

This scenario-based experiment confirms that retailer power leads to a lower chance of exit, driven by powerful retailers having confidence that the supplier will consider the consequences of its actions. It also confirms relationship quality might lower the chance of exit, provided it is sufficiently strong (as achieved in this study through manipulation). This negative effect is driven by both rational considerations of switching costs and emotional considerations of confidence. Finally, countervailing switching cost and conflict considerations limit the impact of expertise on the likelihood of exit (unless one of them dominates, as suggested in Study 1A).

General Discussion

The rapidly changing retail environment creates turbulent times for suppliers. To face the challenges and grasp opportunities, many suppliers reconsider their distribution strategy, which has potentially serious implications for partners in the distribution channel (Palmatier et al. 2020). In this research, we empirically investigate how a supplier's decision to start selling directly to end-consumers might prompt changes in the ordering strategies of its downstream channel partners, i.e., independent, multibrand retailers. These retailers may perceive the direct channel as a form of intrabrand competition (Sa Vinhas and Anderson 2005), to which they may respond by decreasing their support to the supplier (Frazier 1999; Frazier and Lassar 1996), such as by changing their ordering strategy.

By empirically investigating the introduction of an online direct channel to a distribution network that formerly relied on indirect distribution only, using a multimethod approach that combines transactional data (Study 1A) with survey data (Study 1B) and a scenario-based experiment (Study 2), we can sketch a holistic picture of the impact of a new direct channel introduction on (1) the average ordering strategy response, (2) its variation across retailers, and (3) the mechanisms driving these effects. By analyzing the main, moderating, and mediating effects, we are the first to present such a detailed analysis.

The first objective of this research is to investigate the impact of the supplier's direct channel introduction on the retailers' ordering strategy. Hirschman's (1970) proposed two different types of responses to channel conflict: (1) (partially) disengaging from the exchange, or (2) constructively discussing with the supplier. Across the different studies, we find that the overall response to the direct channel introduction is (partial) disengagement from the relationship, such that the exit response prevails. The average retailer decreases the number of distinct SKUs ordered, accompanied by an increased wholesale price, possibly reflecting the

worsened terms of trade. This finding is in line with the sentiment expressed in qualitative interviews with retailers, who mentioned exit as a viable response strategy.

From the estimates in Study 1A, we deduce that, for an average retailer, disengaging from the relationship leads to about 15 fewer distinct SKUs being ordered in the period after the direct channel introduction (or 18.75%, considering average orders of 80 distinct SKUs before) and an increase of € .79 in the average wholesale price (or 20.84%, relative to an average wholesale price per unit of €3.79 in the period before). Still, the increased wholesale price does not compensate for the loss in quantity ordered, so the total order value for the average retailer decreases by €399.50 after the direct channel introduction (or 11.69%, considering an average total order value of €3,416 before).¹⁵ Multiplying this value by the number of treated retailers in both countries (1,967) indicates a loss of €785,816 in the five/six months following a direct channel introduction.

These findings contribute to channel conflict literature that thus far has not studied the impact of channel conflict on downstream partners' ordering strategies. In addition, we add to analytical game theory literature on disintermediation, which tends to start from an assumption of wholesale price reductions. In contrast to such voice behavior, we find that an exit response strategy dominates in our empirical context: The quantity ordered decreases (i.e., fewer distinct SKUs ordered), while wholesale prices increase.

With this work, we also investigate whether retailer power, expertise, and relationship quality (measured prior to the direct channel introduction) moderate the impact of a direct channel introduction on retailers' ordering strategy responses. We find strong evidence that not all retailers respond equally to this encroachment; this finding was supported by our qualitative interviews too, in which answers from smaller mom-and-pop stores differed notably from those of larger, specialist stores. Retailer power turns out to be the most robust moderating

¹⁵ We derive these figures by multiplying the coefficients of direct channel introduction impact on the transformed ordering strategy components by the average value of that component in the initialization period.

characteristic across all our studies, such that powerful retailers disengage less than do less powerful retailers. We identify such a diminished tendency for an exit response regardless of how we measure power, in transactional studies and the scenario-based experiment. Prior competitive response literature has confirmed that more powerful retailers are less distressed when they encounter new horizontal competitors (Ailawadi et al. 2010; Gielens et al. 2008). Our research confirms that this attitude also emerges in response to vertical competition (from a supplier's direct channel). According to the mediation analysis, greater confidence in the supplier, which constitutes an emotional consideration, drives this strong moderating effect.

Relationship quality instead has a weaker effect, such that it is not significant in Study 1A, when we operationalize it with transactional data, nor in Study 1B, with perceptual measures. Such results might imply that this construct is less important than expected from prior research that investigates discord among channel partners (Eslami, Kacker, and Hibbard 2019; Hibbard, Kumar, and Stern 2001). However, the findings that emerge in Study 2, when we manipulate relationship quality, reveal the expected negative effect on the likelihood to exit, driven by both rational (switching costs) and emotional (confidence) considerations. In the empirical setting for Studies 1A and 1B, relationship quality with the supplier remains fairly low and homogeneous; the toy supplier seemingly did not have particularly strong bonds with most of its retailer partners. Building stronger relationships could have protected the supplier from retailers' tendency to disengage from the relationship, according to Study 2.

Finally, the results regarding expertise appear ambiguous, at least at first: We find indications of an exit strategy preference among experts in Study 1A, but we could not replicate this result in Study 1B. Study 2 indicates that expertise is driven by two countervailing forces. On the one hand, experts experience higher switching costs, because the specialized, go-to retailer cannot afford to exclude the brands of important manufacturers, which makes it harder to disengage from the relationship. On the other hand, experts perceive more channel conflict than generalists, because the direct channel threatens their core business, which can evoke

stronger emotional inclinations to disengage. The weights of these two mechanisms determines the retailer's ultimate decision. For the large set of specialists in Study 1A, the emotional channel conflict outweighs the rational switching costs; in Studies 1B and 2, the two mechanisms instead seem to cancel each other out.

Managerial Implications

Our work shows clear evidence of the repercussions that a direct channel introduction has and therefore has important managerial implications for suppliers. Introducing their own direct channel may provide suppliers with opportunities to get closer to their end-customers, but the backlash by retailers makes this step risky. By estimating the likely consequences, each supplier can make an informed assessment of the pros and cons of adding a direct channel. If it decides to introduce such a channel, our research insights can help it plan approaches to avoid or limit the impact of retailers' negative ordering strategy responses.

To mitigate the risk that retailers significantly reduce their orders and choose to offer a smaller selection of SKUs (e.g., more popular ones), suppliers could provide incentives to order other SKUs, such as by lowering the wholesale price (Arya, Middendorf, and Sappington 2007; Tsay and Agrawal 2004). This offer sacrifices some short-term profits, but it also provides retailers with a credible signal that the supplier wants to minimize the potential harm of the direct channel to their operations (Sa Vinhas and Anderson 2005). Alternatively, the supplier might reduce the competition created by the direct channel through differentiation. The extent to which channels compete depends on their similarity, in terms of product, price, and/or service, so the supplier can clearly differentiate what it offers through retailers versus its direct channel (e.g., channel-specific exclusives, online-only personalization services) to limit competition (Sa Vinhas and Heide 2015).

Our work also shows important differences in retailers' likely reactions to the direct channel introduction, which allows the suppliers to predict which partners will react more or

less negatively. Based on this, the supplier can then provide some form of compensation to retailers that seem especially likely to disengage (Tsay and Agrawal 2004). Moreover, they could personalize their communications about the direct channel introduction. For example, retailers with less power are more likely to disengage from the relationship, driven mainly by their lack of confidence in the supplier. As the marginal effects of Study 1A show, small retailers significantly decreased their orders (both the number of distinct SKUs ordered and the order quantity per SKU), which translated into a severe loss of total order value. The supplier should pay special attention to these small retailers and design specific incentives and stimuli to increase their confidence and convince them to keep placing orders.

Specialist retailers appear to respond to a direct channel introduction in ways driven by two countervailing forces: switching costs and channel conflict. Similar to our recommendations pertaining to retailer size, because generalists do not seem to react much, whereas specialists decrease their total orders (especially the number of distinct SKUs ordered), the supplier should focus on specialists in its communication strategy. To keep them from disengaging, the supplier's communication should highlight its efforts to avoid channel conflict and emphasize how important its brands are within specialists' assortment.

Suppliers may not only offer some forms of compensation or attempt to communicate strategically, we encourage them to build close relationships with their retailers. Previous literature has established the critical advantages of close relationships (devotion [Ganesan 1994] and a higher willingness to work out disagreements [Anderson and Narus 1990]). Our Study 2 shows that a close relationship also makes retailers less likely to exit the exchange relationship after a direct channel introduction, because they sense higher confidence in the supplier and higher perceived switching costs.

Limitations

While we provide interesting new insights into how retailers react to the introduction of a direct channel, our research is not without limitations and thus offers continued research opportunities. First, all our studies involve one supplier in the toy industry, which may limit the generalizability of the results. Suppliers can handle a direct channel introduction in various ways, in terms of how they communicate its introduction or prevent retailer retaliation (e.g., through lower wholesale prices, compensation, product differentiation). Future research might investigate the effectiveness of these actions. In addition, retailers’ responses to the direct channel introduction might depend on sector characteristics, so we need research into whether and how the results replicate in other sectors. Although we include transactional data in Studies 1A and 1B already, we hope further research will replicate our scenario-based experiment among managers in charge of their retail firm’s ordering strategy to achieve further generalizability.

Second, we ensured similarity between treated and control retailers before the event, in terms of their business environment and ordering strategy components, but we did not have access to more granular, store-level characteristics (e.g., store traffic, store location competitive concentration), which could help establish further similarity between treated and control retailers. We also assume that the demonstrated effects are not caused by other exogenous shocks in the after period, an assumption that is commonly made in difference-in-differences analyses. Although we investigate the effects of the direct channel introduction for several months, continued research could address even longer-term impacts. Over a longer period, retailers’ orders may be driven more by changes in their own sales or by annual renegotiations with the supplier. Despite our clear finding that retailers disengage from the exchange on average, over time, a direct channel might prove beneficial, functioning like a billboard that attracts additional consumer demand (Van Crombrugge et al. 2024).

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Third, further research could examine whether other terms of trade between the supplier and its retailers are affected by the direct channel introduction (e.g., shelf space allocations, sales service, promotions). In addition, the presence of the direct channel might affect business-to-consumer marketing considerations, such as retail prices, and the profits of the retail chain.

Finally, we rely on a 10% significance level to test our hypotheses as we believe that for papers like ours where the focus lies on managerial implications, there are real managerial costs associated with type II errors, i.e., unjustifiably rejecting the alternative hypothesis (Lodish et al. 1995). Nevertheless, we report coefficients, standard errors, exact p-values and sample sizes to allow readers to make more general conclusions based on the cumulative evidence from multiple studies (McShane et al. 2024).

Despite these limitations, this study extends extant empirical knowledge pertaining to the impact of a supplier's direct channel introduction by predicting and affirming (1) retailers' responses, in the form of different components of their ordering strategy; (2) how this impact is moderated by retailer power, expertise, and relationship quality; and (3) which mechanisms underlie the moderation effects. Our framework thus helps create a fuller, more detailed picture of the consequences of adding a direct channel to a network of independent retailers.

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Web Appendix:

How Retailers Change Ordering Strategies When Suppliers Go Direct

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Web Appendix A: Overview of Studies

Table WA.1. Overview of Studies

	Dependent variables	Moderator			Underlying mechanisms of ordering strategy responses
		Power	Expertise	Relationship quality	
Study 1A: Analysis of transactional order data, moderators based on transactional data	Ordering strategy components • Δ in # of distinct SKUs ordered • Δ in order quantity per SKU • Δ in wholesale price per unit • Δ in total order value (in euro) <i>Derived from transactional data</i>	• Supplier dependence <i>Derived from transactional data</i>	• Specialist <i>Derived from internal information from supplier</i>	• Order frequency <i>Derived from transactional data</i>	/
Study 1B: Analysis of transactional order data, moderators partially based on survey data	Ordering strategy components • Δ in # of distinct SKUs ordered • Δ in order quantity per SKU • Δ in wholesale price per unit • Δ in total order value (in euro) <i>Derived from transactional data</i>	• Supplier dependence • Retailer dependence <i>Measured via survey</i>	• Specialist <i>Derived from internal information from supplier</i>	• Relationship quality <i>Measured via survey</i>	/
Study 2: Scenario-based experiment	Likelihood of exit response strategy <i>Measured via survey</i>	<i>Manipulated in scenario-based study</i>	<i>Manipulated in scenario-based study</i>	<i>Manipulated in scenario-based study</i>	Coercive power Switching costs Confidence Conflict <i>Measured via survey</i>

Web Appendix B: Overview of Variable Operationalizations

Table WB.1. Overview of Variable Operationalizations per Study

Study 1A	Operationalization	Source	Mean	SD
Dependent Variables^a				
Number of distinct SKUs	The number of different SKUs ordered by retailer r at the focal supplier in period t.	Transactional data	73.80	61.16
Order quantity per SKU	The total number of units ordered by retailer r in period t at the focal supplier divided by the number of distinct SKUs ordered in that period and for that retailer.	Transactional data	8.59	37.04
Wholesale price per unit	The total euro value ordered by retailer r at the focal supplier in period t divided by the total number of units ordered by that retailer in that period.	Transactional data	4.11	6.52
Total order value	The total value (in euro) ordered by retailer r in period t.	Transactional data	3,205.08	19,504.17
Moderator: Power^b				
Size	The number of physical stores of retailer r in the initialization period.	Internal information from supplier	150.94	158.99
Supplier Dependence	Retailer r's total order value in the initialization period divided by the market's total order value in the initialization period.	Transactional data	.001	.008
Moderator: Expertise^c				
Specialist	A contrast-coded dummy variable that equals 1 when retailer r is a specialist, and -1 when generalist.	Internal information from supplier	57.07%	
Moderator: Relationship Quality^b				
Relationship Quality	The average number of purchase incidences of retailer r per month in the initialization period.	Transactional data	.38	.25
Study 1B				
Dependent Variables^d				
DiD Number of distinct SKUs	Difference between treated retailer r and matched control retailer in change in number of distinct SKUs after versus before the event. Number of distinct SKUs operationalized similar to Study 1A.		-.34	1.81
DiD Order quantity per SKU	Difference between treated retailer r and matched control retailer in change in number of order quantity per SKU after versus before the event. Order quantity per SKU operationalized similar to Study 1A.		.10	.63
DiD Wholesale price per unit	Difference between treated retailer r and matched control retailer in change in wholesale price per unit after versus before the event. Wholesale price per unit operationalized similar to Study 1A.		.05	.95
DiD Total order value	Difference between treated retailer r and matched control retailer in change in total order value after versus before the event. Total order value operationalized similar to Study 1A.		-.19	2.11
Moderator: Power^b				
Size	See Study 1A		103.77	124.67

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Supplier Dependence	A measure of the dependence of the focal supplier on retailer r (see also Web Appendix F).	Survey	4.10	1.30
Retailer Dependence	A measure of the dependence of retailer r on the focal supplier (see also Web Appendix F).	Survey	3.46	1.15
Moderator: Expertise^c				
Specialist	See Study 1A		46.31%	
Moderator: Relationship Quality^b				
Relationship Quality	A composite measure consisting of the trust, affective commitment and satisfaction between retailer r and the focal supplier (see also Web Appendix F).	Survey	4.49	.82
Study 2				
Dependent Variables				
Exit	The likelihood to exit the relationship as the ordering strategy response to the focal supplier's direct channel introduction, average score on five items on a 1-7 scale (see also Web Appendix G).	Scenario-based experiment	3.93	1.22
Moderators^c				
Power	A dummy variable that equals 1 when the retailer in the scenario is sizeable and important to the focal supplier, and 0 when small and not so important (see also Web Appendix G).	Scenario-based experiment	40.90%	
Expertise	A dummy variable that equals 1 when the retailer in the scenario only sells toys products and has a lot of expertise in the category, and 0 when it sells many other products and does not have a particular category expertise (see also Web Appendix G).	Scenario-based experiment	43.06%	
Relationship Quality	A dummy variable that equals 1 when the retailer in the scenario has a close relationship with the focal supplier based on mutual commitment, and 0 when the relationship is not close and neither are strongly committed (see also Web Appendix G).	Scenario-based experiment	41.73%	
Mediators				
Coercive Power	A measure of the perceived coercive power vis-à-vis the focal supplier, average score on two items on a 1-7 scale (see also Web Appendix G).	Scenario-based experiment	3.99	1.34
Switching Costs	A measure of the perceived costs of switching to a different supplier than the focal supplier, average score on two items on a 1-7 scale (see also Web Appendix G).	Scenario-based experiment	4.66	1.42
Confidence	A measure of the perceived confidence in the focal supplier, average score on five items on a 1-7 scale (see also Web Appendix G).	Scenario-based experiment	3.73	1.08
Conflict	A measure of the perceived conflict between the retailer in the scenario and the focal supplier, average score on six items on a 1-7 scale (see also Web Appendix G).	Scenario-based experiment	3.99	1.02

^a We report statistics before transforming.

^b We report statistics before mean-centering.

^c For dummy variables, we report the percentage of observations having the value of 1.

^d DiD = difference-in-differences.

Table WB.2. Correlation Table of Study 1A

	1	2	3	4	5	6	7	8
1 Number of Distinct SKUs								
2 Order Quantity per SKU	.04							
3 Wholesale Price per Unit	-.04	-.04						
4 Total Order Value	.48	.35	.01					
5 Size	.00	-.01	.03	.02				
6 Supplier Dependence	.01	-.03	-.01	-.02	-.04			
7 Specialist	.01	.01	.03	.03	-.01	.04		
8 Relationship Quality	-.09	-.25	-.02	-.25	-.09	.20	.15	

Table WB.3. Correlation Table of Study 1B

	1	2	3	4	5	6	7	8	9
1 DiD Number of Distinct SKUs									
2 DiD Order Quantity per SKU	-.16								
3 DiD Wholesale Price per Unit	-.07	-.31							
4 DiD Total Order Value	.76	.28	-.01						
5 Size	-.01	.00	.13	.01					
6 Supplier Dependence	.13	.06	.15	.18	.05				
7 Retailer Dependence	.07	.07	.13	.19	-.06	.53			
8 Specialist	-.11	.04	.10	-.03	.12	.09	-.01		
9 Relationship Quality	.04	.00	.02	.11	.10	.39	.35	.11	

Note: DiD = difference-in-differences.

Table WB.4. Correlation Table of Study 2

	1	3	4	5	6	7	8
1 Exit							
2 Power	-.07						
3 Expertise	.01	.03					
4 Relationship Quality	-.14	.01	.01				
5 Coercive Power	.15	.28	.02	-.03			
6 Switching Costs	-.07	.01	.12	.11	-.02		
7 Confidence	-.22	.17	-.01	.20	.11	.16	
8 Conflict	.29	.00	.08	-.02	.27	.17	-.04

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**Web Appendix C: Study 1A – Comparison Control and Treatment Group for
Untransformed Ordering Strategy Components**

**Table WC.1. Mean Differences Between Control and Treatment Group for the
Untransformed Ordering Strategy Components**

	Control		Treatment		Mean Δ	p of mean Δ^a	SMD ^b
	M	SD	M	SD			
Number of distinct SKUs	66.41	53.48	79.79	64.15	13.38	(.000) ***	.209
Order quantity /SKU	9.63	43.27	10.32	45.48	.69	(.732)	.015
Wholesale price /unit	3.98	5.64	3.79	4.64	-.19	(.398)	-.040
Total order value	3,060.63	21,460.76	3,416.61	17,832.21	355.98	(.674)	.020

^aStatistical significance of group mean difference t-test.

^bStandardized mean difference (= difference in means between treatment and control group divided by standard deviation of the treatment group).

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Web Appendix D: Study 1A – Full Results of Robustness Checks 5-6, Falsification Test (Equation 1) and Robustness Checks (Equation 2)

Full Results of Robustness Check 5 (Equation 1)

In robustness check 5, we adapt the panel difference-in-differences model of Equation 1 in the following way:

$$(1) OSC_{rt}^{S*} = \beta_0^S + \beta_1^S Treatment_r + \beta_2^S After_t + \beta_3^S Treatment_r \times After_t + \beta_4^S Holiday Dummy_t + \gamma_r + \varepsilon_{rt}^S$$

where OSC_{rt}^{S*} is the transformed ordering strategy component S of retailer r in quarter t, where t equals 1, ..., 6 for France and t equals 1, ..., 5 for the United Kingdom. We consider four quarters (one year) before and, respectively, two quarters and one quarter after the entry of the direct channel in France and the United Kingdom since our observation period ends in December 2017 (see Figure 2), i.e., six months (two full quarters) after the entry in France and 5 months (one full quarter) in the United Kingdom. The after dummy variable ($After_t$) equals 1 in the quarter(s) after the direct channel introduction and zero in the quarters before. We also add $Holiday Dummy_t$ that equals 1 if quarter t contains the peak sales months November or December. The treatment dummy variable ($Treatment_r$) equals 1 for treated retailers (from France and the United Kingdom) and zero for control retailers (from Spain).

We limit the sample of control retailers to a matched sample, where we take advantage of the four-quarter before period and match with replacement on the first (i.e., mean) and second (i.e., standard deviation) moments of the dependent variables, using nearest neighbor matching. We include random effects (γ_r) and clustered standard errors on the retailer level to control for time-invariant unobserved heterogeneity across retailers. Table WD.1 displays the full results and shows the results support the exit response; there are fewer retailer orders and a higher wholesale price.

Table WD.1. Robustness Check of Quarterly Panel Model with Nearest Neighbor Matching (Equation 1)

	Focal Model			Quarterly Panel Model with Nearest Neighbor Matching		
	B	SE	p	B	SE	p
Number of distinct SKUs						
Intercept	2.076	.072	.000 ***	1.409	.075	.000 ***
Treatment	.061	.120	.608	-.096	.100	.336
After	.035	.075	.641	.055	.059	.351
Holiday Dummy				.268	.094	.004 ***
Treatment x After	-.380	.118	.001 ***	-.196	.079	.013 **
Order quantity per SKU						
Intercept	.732	.015	.000 ***	1.806	.076	.000 ***
Treatment	.012	.023	.607	-.222	.091	.015 **
After	-.211	.035	.000 ***	.036	.158	.819
Holiday Dummy				.214	.048	.000 ***
Treatment x After	-.038	.039	.335	-.410	.161	.011 **
Wholesale price per unit						
Intercept	1.232	.067	.000 ***	1.227	.044	.000 ***
Treatment	-.026	.070	.707	-.078	.045	.082 *
After	.056	.069	.420	.015	.039	.706
Holiday Dummy				.034	.041	.406
Treatment x After	.250	.115	.030 **	.367	.080	.000 ***
Total order value						
Intercept	1.562	.069	.000 ***	1.468	.072	.000 ***
Treatment	.054	.088	.537	-.068	.083	.411
After	-.016	.065	.807	.104	.061	.087 *
Holiday Dummy				.277	.053	.000 ***
Treatment x After	-.166	.081	.041 **	-.040	.072	.575

* $p < .1$; ** $p < .05$; *** $p < .01$.

Because the difference-in-differences approach underlying the quarterly panel model relies on the assumption of parallel (seasonal) trends, we performed two assessments. First, we estimated a pretreatment trend test on the pretreatment data (i.e., four quarters before the direct channel entry) (Keller, Geyskens, & Dekimpe 2020), where we regressed the transformed ordering strategy component in the pretreatment period $OSC_{rt}^{S*,pre}$ on a deterministic (quarterly) trend variable ($Trend_t$), the treatment dummy ($Treatment_r$), and the interaction between both ($Treatment_r \times Trend_t$) so that:

$$OSC_{rt}^{S*,pre} = \beta_0^{S,pre} + \beta_1^{S,pre} Treatment_r + \beta_2^{S,pre} Trend_t + \beta_3^{S,pre} Trend_t \times Treatment_r + \gamma_r + \varepsilon_{rt}^S$$

The results indicate that trend deviations captured through $\beta_3^{S,pre}$ are not significantly different between the treatment and control group ($p > .10$) for all transformed ordering strategy

components $OSC_{rt}^{S*,pre}$. This provides support that the pretreatment trends are statistically equivalent in our models.

Second, we estimated a leads-lags relative time model where we add a series of period dummy variables to the focal quarterly panel model so that:

$$OSC_{rt}^{S*} = \beta_0^S + \beta_1^S Treatment_r + \sum_j \beta_j [PRE_{rt}(j) \times Treatment_r] + \sum_k \beta_k [POST_{rt}(k) \times Treatment_r] + \sum_j \beta_{j,main} PRE_{rt}(j) + \sum_k \beta_{k,main} POST_{rt}(k) + \gamma_r + \varepsilon_{rt}^S$$

where $PRE_{it}(j)$ and $POST_{it}(k)$ are indicator functions that equal 1 if period t is, respectively, j quarters prior to direct channel introduction ($j = -4, \dots, -1$) or k quarters after the direct channel introduction ($k = 0, 1$). In this model, $\sum_j \beta_j [PRE_{rt}(j) \times Treatment_r]$ allows to examine whether the estimated treatment effects are not biased by differences in seasonal trends between the treatment and control groups; estimated treatment effects are valid if β_j are not significant and directionally similar to the treatment effects in β_k . Following prior work (Agrawal and Goldfarb 2008, Zhang et al. 2022), we set the period prior to the quarter of the direct channel introduction as the reference period for better interpretability. For all transformed ordering strategy components OSC_{rt}^{S*} , we find that none of the coefficients of the pretreatment indicators are directionally similar and significant ($p > .10$) to the significant treatment effects, except for the order quantity per SKU where we find a significant, but smaller, negative effect for $j = -3$ that is the directionally similar to the negative, but larger, treatment effect. We therefore advice caution in the interpretation of the impact of the direct channel introduction on the order quantity per SKU in the quarterly panel model.

Full Results of Robustness Check 6 (Equation 1)

In robustness check 6, we verified whether the results of Equation 1 differ per treated country. To do so, we estimated the focal model including a dummy variable that equals 1 if the retailer

resides in the United Kingdom and 0 otherwise. Because the treatment variable does not vary between the different treated countries, their interactions drop out and we can only assess the differential effect of the direct channel introduction on retailers for the United Kingdom through its interaction with the after dummy. Table WD.2 displays the full results and confirms the robustness of the exit response: there are fewer retailer orders and a higher wholesale price.

Table WD.2. Robustness Check with Country Dummy Variable (Equation 1)

	Focal Model			Controlling for Country Differences		
	B	SE	p	B	SE	p
Number of distinct SKUs						
Intercept	2.076	.072	.000 ***	2.305	.106	.000 ***
Treatment	.061	.120	.608	-.062	.145	.672
After	.035	.075	.641	-.071	.106	.505
Country Dummy				.229	.077	.003 **
Treatment x After	-.380	.118	.001 ***	-.323	.141	.022 **
After x Country Dummy				-.106	.075	.157
Order quantity per SKU						
Intercept	.732	.015	.000 ***	.703	.032	.000 ***
Treatment	.012	.023	.607	.028	.020	.161
After	-.211	.035	.000 ***	-.170	.046	.000 ***
Country Dummy				-.029	.028	.302
Treatment x After	-.038	.039	.335	-.060	.037	.110
After x Country Dummy				.040	.030	.185
Wholesale price per unit						
Intercept	1.232	.067	.000 ***	1.190	.070	.000 ***
Treatment	-.026	.070	.707	-.004	.072	.956
After	.056	.069	.420	-.130	.095	.172
Country Dummy				-.042	.021	.049 *
Treatment x After	.250	.115	.030 **	.348	.143	.015 **
After x Country Dummy				-.185	.065	.004 **
Total order value						
Intercept	1.562	.069	.000 ***	1.577	.088	.000 ***
Treatment	.054	.088	.537	.046	.097	.634
After	-.016	.065	.807	.015	.054	.782
Country Dummy				-.063	.083	.445
Treatment x After	-.166	.081	.041 **	-.048	.052	.360
After x Country Dummy				-.140	.088	.109

* $p < .1$; ** $p < .05$; *** $p < .01$.

Falsification Test (Equation 1)

To validate the direct channel introduction as the driving force of the change in retailers' ordering strategies, we re-analyze Equation 1 in Study 1A in a falsification test by imposing a placebo event, where we pretend that the event of the online direct channel introduction happened one year before the actual introduction (June 2016 (France) and July 2016 (the United

Kingdom), instead of June 2017 (France) and July 2017 (the United Kingdom); comparing the before period in Figure 2 to the same months one year earlier). The results are summarized in Table WD.3.

Table WD.3. Falsification Test on Panel Difference-in-Differences Analyses (Equation 1)

	Focal Model			Falsification Test		
	B	SE	p	B	SE	p
Number of distinct SKUs						
Intercept	2.076	.072	.000 ***	2.869	.083	.000 ***
Treatment	.061	.120	.608	.067	.169	.691
After	.035	.075	.641	-.579	.156	.000 ***
Treatment x After	-.380	.118	.001 ***	-.114	.225	.610
Order quantity per SKU						
Intercept	.732	.015	.000 ***	.744	.015	.000 ***
Treatment	.012	.023	.607	.307	.297	.301
After	-.211	.035	.000 ***	-.104	.022	.000 ***
Treatment x After	-.038	.039	.335	-.222	.297	.453
Wholesale price per unit						
Intercept	1.232	.067	.000 ***	1.292	.029	.000 ***
Treatment	-.026	.070	.707	.045	.034	.184
After	.056	.069	.420	.086	.108	.425
Treatment x After	.250	.115	.030 **	-.215	.110	.052 *
Total order value						
Intercept	1.562	.069	.000 ***	1.585	.066	.000 ***
Treatment	.054	.088	.537	-.004	.118	.976
After	-.016	.065	.807	-.345	.072	.000 ***
Treatment x After	-.166	.081	.041 **	.059	.134	.659

* $p < .1$; ** $p < .05$; *** $p < .01$.

Table WD.3 shows that the number of distinct SKUs ordered and the total order value did not significantly change following the placebo event ($\beta_3^{Distinct\ SKUs-Placebo} = -.114$; $p = .610$; $\beta_3^{Order\ value-Placebo} = .059$; $p = .659$), while they significantly decreased following the true direct channel introduction ($\beta_3^{Distinct\ SKUs} = -.380$; $p < .01$; $\beta_3^{Order\ value} = -.166$; $p < .01$). Also, the wholesale price of the focal brand dropped significantly following the placebo event ($\beta_3^{Wholesale\ price/unit-Placebo} = -.215$; $p < .10$), while it significantly increased following the true direct channel introduction ($\beta_3^{Wholesale\ price/unit} = .250$; $p < .05$). The decrease in order quantity per SKU following the direct channel introduction is not significant for both the placebo and true event ($\beta_3^{Quantity/SKU-Placebo} = -.222$; $p = .453$; $\beta_3^{Quantity/SKU} = -.038$; $p = .335$). Hence the responses in ordering strategy components for the placebo event are

substantively different from the responses we estimate for the true direct channel introduction. This falsification test thus shows that the changes in retailers' ordering strategies to the true event are not driven by a pre-existing trend in the before period.

Robustness Checks (Equation 2)

We checked the robustness of our moderating results using alternative operationalizations of moderators used in Equation 2. First, we alternatively operationalized supplier dependence as a retailer's total order value instead of its percentage in the supplier's sales. Table WD.4 confirms that results are robust. Second, we alternatively operationalized relationship quality as (i) the length of the relationship between the supplier and retailer (i.e., time passed since a retailer's first order in the observation window), and (ii) the recency of their relationship (i.e., time passed since a retailer's last order in the observation window). Compared to the focal measure (the average number of purchase incidences of a retailer per month in the initialization period) used in the main model, Table WD.5 confirms robust results with the exception of the moderation effect for total order value which becomes insignificant in the model using recency as the measure of relationship quality.

Table WD.4. Robustness Check on Supplier Dependence in Panel Difference-in-Differences Analyses with Moderation (Equation 2)

	Focal Model				Check on Supplier Dependence			
	[Supplier Dependence = $\frac{\text{Total Order Value}_r}{\sum_{r=1}^{\# \text{retailers}} \text{Total Order Value}_r}$]				[Supplier dependence = Total Order Value _r (in €100,000)]			
	B	SE	p		B	SE	p	
Number of distinct SKUs								
Treatment x After	-.398	.122	.001	***	-.389	.120	.001	***
Treatment x After x Size	.002	.001	.038	**	.002	.001	.038	**
Treatment x After x Supplier Dependence	-13.601	2.601	.509		-.418	.000	.781	
Treatment x After x Specialist	-.475	.160	.003	***	-.475	.160	.003	***
Treatment x After x Relationship Quality	.747	.774	.334		.745	.771	.334	
Lower-order Interactions and Main Effects	✓				✓			
Order quantity / SKU								
Treatment x After	-.076	.037	.039	**	-.076	.037	.039	**
Treatment x After x Size	.0004	.0002	.040	**	.0004	.0002	.040	**
Treatment x After x Supplier Dependence	-1.417	3.347	.672		-.083	.000	.725	
Treatment x After x Specialist	-.003	.034	.923		-.003	.034	.923	
Treatment x After x Relationship Quality	.226	.168	.178		.226	.168	.178	
Lower-order Interactions and Main Effects	✓				✓			
Wholesale price / unit								
Treatment x After	.204	.116	.080	*	.204	.116	.080	*
Treatment x After x Size	.001	.001	.458		.001	.001	.458	
Treatment x After x Supplier Dependence	-3.204	7.164	.655		-.260	.000	.750	
Treatment x After x Specialist	-.025	.097	.794		-.025	.097	.795	
Treatment x After x Relationship Quality	.027	.497	.957		.026	.497	.958	
Lower-order Interactions and Main Effects	✓				✓			
Total order value								
Treatment x After	-.208	.075	.005	***	-.205	.075	.006	***
Treatment x After x Size	.002	.001	.000	***	.002	.001	.000	***
Treatment x After x Supplier Dependence	-3.181	9.063	.726		-.112	.000	.859	
Treatment x After x Specialist	-.241	.087	.006	***	-.241	.087	.006	***
Treatment x After x Relationship Quality	.731	.417	.080	*	.735	.416	.078	*
Lower-order Interactions and Main Effects	✓				✓			

* $p < .1$; ** $p < .05$; *** $p < .01$.

Table WD.5. Robustness Checks on Relationship Quality in Panel Difference-in-Differences Analyses with Moderation (Equation 2)

	Focal Model [Relationship Quality = Order Frequency _{<i>t</i>}]				Check on Relationship Quality [Relationship Quality = Relationship Duration _{<i>t</i>} (in 100 days)]				Check on Relationship Quality [Relationship Quality = Order Recency _{<i>t</i>} (in 100 day)]			
	B	SE	p		B	SE	p		B	SE	p	
Number of distinct SKUs												
Treatment x After	-.398	.122	.001	***	-.486	.156	.002	***	-.398	.120	.001	***
Treatment x After x Size	.002	.001	.038	**	.002	.001	.111		.002	.001	.083	*
Treatment x After x Supplier Dependence	-13.601	2.601	.509		-9.345	19.529	.632		-1.662	17.671	.925	
Treatment x After x Specialist	-.475	.160	.003	***	-.428	.147	.004	***	-.425	.122	.000	***
Treatment x After x Relationship Quality	.747	.774	.334		.177	.001	.201		.059	.002	.711	
Lower-order Interactions and Main Effects	✓				✓				✓			
Order quantity / SKU												
Treatment x After	-.076	.037	.039	**	-.117	.031	.000	***	-.076	.037	.039	**
Treatment x After x Size	.0004	.0002	.040	**	.0004	.0002	.036	**	.0003	.0002	.128	
Treatment x After x Supplier Dependence	-1.417	3.347	.672		4.239	3.630	.243		3.475	3.375	.303	
Treatment x After x Specialist	-.003	.034	.923		.044	.033	.190		.029	.034	.388	
Treatment x After x Relationship Quality	.226	.168	.178		.0251	.000	.279		.104	.001	.147	
Lower-order Interactions and Main Effects	✓				✓				✓			
Wholesale price / unit												
Treatment x After	.204	.116	.080	*	.232	.115	.044	**	.226	.141	.111	
Treatment x After x Size	.001	.001	.458		.001	.001	.447		.000	.001	.741	
Treatment x After x Supplier Dependence	-3.204	7.164	.655		2.361	8.747	.787		3.211	7.742	.678	
Treatment x After x Specialist	-.025	.097	.794		-.023	.117	.841		-.034	.090	.705	
Treatment x After x Relationship Quality	.027	.497	.957		.006	.000	.862		.475	.003	.159	
Lower-order Interactions and Main Effects	✓				✓				✓			
Total order value												
Treatment x After	-.208	.075	.005	***	-.267	.075	.000	***	-.212	.074	.004	***
Treatment x After x Size	.002	.001	.000	***	.002	.001	.000	***	.002	.001	.001	***
Treatment x After x Supplier Dependence	-3.181	9.063	.726		5.081	8.564	.553		5.963	8.707	.493	
Treatment x After x Specialist	-.241	.087	.006	***	-.179	.078	.022	**	-.221	.077	.004	***
Treatment x After x Relationship Quality	.731	.417	.080	*	.099	.001	.081	*	.029	.001	.812	
Lower-order Interactions and Main Effects	✓				✓				✓			

* $p < .1$; ** $p < .05$; *** $p < .01$.

Web Appendix E: Study 1B – Non-Response Bias in Survey

To account for a potential bias caused by intrinsic differences between responders and non-responders to the survey in Study 1B, we checked the robustness of our results using a Heckman selection model. In the first-stage equation, this approach aims to predict whether or not a certain retailer in our sample responds to the survey. In the second-stage equation, we use the change models as specified via Equation 3 including the Inverse Mills Ratio (IMR) calculated from the first-stage equation.

In the first-stage equation, we include the following two dummy variables as exclusion restrictions: (i) a dummy variable that captures whether or not the e-mail address provided by the supplier is a personal address rather than a more general “info@”-address (classification based on the first part of the e-mail address), and (ii) a dummy variable that captures whether or not the e-mail address provided by the supplier is a company e-mail address rather than a general one (e.g., “@gmail.com” or “@hotmail.com”) (classification based on the last part of the e-mail address). Both variables are expected to influence the likelihood of responding to the survey, while they are unlikely to influence the ordering strategy decisions. Hence, these variables can be considered as good exclusion criteria. We show the results below in Table WE.1 (first-stage selection equation) and WE.2 (second-stage outcome equation).

We obtain a hit rate of 89%, which is better than the hit rate obtained by chance ($86\% = \alpha^2 + (1 - \alpha)^2$, with $\alpha = 7.6\%$; the number of treated responders divided by the total number of treated retailers). Both exclusion criteria are significant in the first-stage equation, showing the relevance of the exclusion criteria: using a personal (name-based) rather than info@-based address increases the chance of responding, using a company e-mail rather than a general e-mail address lowers the chance of responding. Moreover, a likelihood ratio test shows that the inclusion of the two exclusion criteria significantly improves the fit of the first-stage equation ($\chi^2 = 9.05$; $p < .05$). In addition, none of the added IMRs in the outcome equations are

significant, showing that non-response bias is not a concern. What is more, our moderation results remain robust to the inclusion of these IMRs.

Table WE.1. Heckman Approach for Study 1B: First-Stage Selection Equation

	B	SE	p
Intercept	-1.189	.080	.000 ***
Name-based e-mail address	.278	.130	.032 **
Company e-mail address	-.205	.096	.032 **
Specialist	.230	.050	.000 ***

Table WE.2. Heckman Approach for Study 1B: Second-Stage Outcome Equation

	Focal Model			Heckman-corrected		
	B	SE	p	B	SE	p
Number of distinct SKUs						
Intercept	-.244	.163	.137	1.440	2.336	.538
Size	.002	.001	.090 *	.002	.001	.071 *
Supplier Dependency	.359	.128	.006 ***	.364	.125	.004 ***
Retailer Dependency	-.266	.150	.079 *	-.256	.147	.082 *
Specialist	-.206	.166	.216	-.413	.330	.211
Relationship Quality	-.112	.202	.579	-.104	.198	.599
IMR				-.963	1.333	.470
Order quantity / SKU						
Intercept	.124	.058	.035 **	.463	.817	.571
Size	.001	.000	.204	.001	.000	.181
Supplier Dependency	.059	.046	.201	.060	.045	.183
Retailer Dependency	-.069	.054	.199	-.067	.053	.202
Specialist	-.041	.059	.487	-.083	.116	.474
Relationship Quality	-.064	.072	.379	-.062	.071	.381
IMR				-.194	.466	.677
Wholesale price / unit						
Intercept	.010	.097	.918	-.145	1.843	.937
Size	.001	.001	.175	.001	.001	.164
Supplier Dependency	.078	.081	.342	.077	.080	.335
Retailer Dependency	.094	.098	.339	.093	.095	.328
Specialist	.090	.098	.361	.106	.214	.622
Relationship Quality	-.094	.119	.432	-.095	.117	.416
IMR				.084	1.003	.933
Total order value						
Intercept	-.117	.193	.544	.697	2.699	.796
Size	.003	.001	.050 *	.003	.001	.042 **
Supplier Dependency	.301	.152	.049 **	.303	.149	.041 **
Retailer Dependency	-.203	.178	.256	-.198	.175	.258
Specialist	-.147	.196	.454	-.248	.383	.518
Relationship Quality	-.112	.239	.640	-.108	.235	.645
IMR				-.466	1.541	.762

* $p < .1$; ** $p < .05$; *** $p < .01$. Notes: IMR = Inverse Mills Ratio.

Web Appendix F: Study 1B – Measures Used in the Survey

Supplier Dependence (adapted from Ganesan (1994), Cronbach’s alpha = .852)

- Our firm is important to [the Supplier].
- Our firm is a major outlet for [the Supplier] in our trading area.
- Our firm is a major outlet for [the Supplier].

Retailer Dependence (adapted from Ganesan (1994), Cronbach’s alpha = .871)

- If the relationship between our firm and [the Supplier] was discontinued, our firm would have difficulty in making up the sales volume in our trading area.
- [The Supplier] is crucial to the future performance of our firm.
- It would be difficult for our firm to replace [the Supplier].
- Our firm is dependent on [the Supplier].
- Our firm does not have a good alternative to [the Supplier].
- [The Supplier] is important to the business of our firm.
- [The Supplier]’s product lines are essential to round out the product offering of our firm.
- If the relationship between our firm and [the Supplier] was discontinued, our firm would have difficulty replacing [the Supplier].

Relationship Quality (composite measure of Trust, adapted from Kumar et al. (1995); Social Satisfaction, adapted from Geyskens & Steenkamp (2000); Affective Commitment, adapted from Kumar et al. (1995), Cronbach’s alpha = .919)

- Even when [the Supplier] gives us a rather unlikely explanation, we are confident that they are telling the truth.
- [The Supplier] has never provided us information which has later proven to be inaccurate.
- [The Supplier] usually keeps the promises they make to our firm.
- Whenever [the Supplier] gives us advice on our business operations, we know they are sharing their best judgment.
- Our firm can count on [the Supplier] to be sincere.
- Though circumstances change, we believe that [the Supplier] will be ready and willing to offer our firm assistance and support.
- When making important decisions, [the Supplier] is concerned about the welfare of our firm.
- When our firm shares problems with [the Supplier], we know that they will respond with understanding.
- In the future our firm can count on [the Supplier] to consider how its decisions and actions will affect our firm.
- When it comes to things which are important to our firm, we can depend on [the Supplier]’s support.
- The working relationship of our firm with [the Supplier] is characterized by feelings of hostility. (R)
- [The Supplier] expresses criticism tactfully.
- Interactions between our firm and [the Supplier] are characterized by mutual respect.
- [The Supplier] leaves our firm in the dark about things our firm ought to know. (R)
- [The Supplier] refuses to explain the reasons for its policies. (R)
- Even if we could, our firm would not drop [the Supplier] because our firm likes being associated with [the Supplier].
- Our firm wants to remain a member of [the Supplier]’s network, because our firm genuinely enjoys our relationship with [the Supplier].
- The positive feelings of our firm towards [the Supplier] are a major reason our firm continues working with [the Supplier].

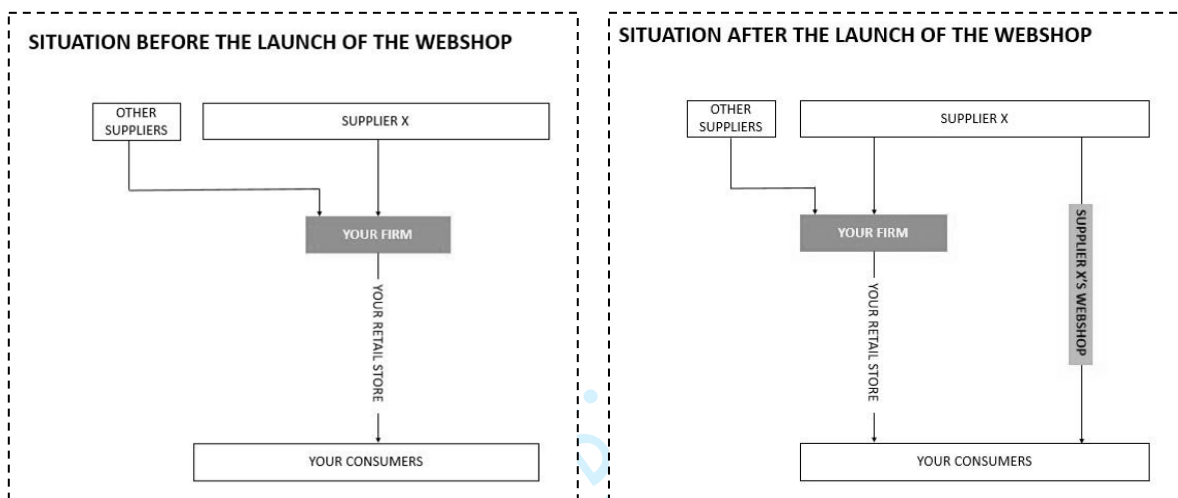
Notes: Measured on a scale from 1 = “strongly disagree” to 7 = “strongly agree”. (R) = reverse-scored item.

Web Appendix G: Study 2 – Scenario, Manipulations and Measures Used

Part 1: Scenario

Imagine you are a purchasing manager for a chain of stores. You buy toy products from different suppliers. There are multiple qualified suppliers for toys in the market, among which supplier X. Supplier X has a well-established brand name and market position in the toy industry (ranked 7th).

Supplier X recently launched its own webshop. This allows supplier X to bypass your firm and directly sell its toy products to the consumers. The situation before and after the launch of supplier X's webshop is visualized below.



In the following, we describe the circumstances for your firm before the launch of the webshop. Please keep this in mind for the following questions.

[Insert Manipulation]

Part 2: Manipulations

(Respondents saw one manipulation for Retailer Power (high or low), one manipulation for Retailer Expertise (specialist or generalist) and one manipulation for Relationship Quality (close or not close)).

Retailer Power: High. Your firm is sizeable. Your firm is important to supplier X because it contributes a lot to supplier X's sales. Supplier X depends on your firm a lot.

Retailer Power: Low. Your firm is small. Your firm is not so important to supplier X because it contributes little to supplier X's sales. Supplier X does not depend on your firm a lot.

Retailer Expertise: Specialist. Your firm is specialized in toys. Your firm only sells toys products. As a result, you have a lot of expertise in the toys category.

Retailer Expertise: Generalist. Your firm is not specialized in toys. Your firm also sells many other products (such as tools, groceries, clothing, beauty products and more). As a result, you do not have a particular expertise in the toys category.

Relationship Quality: Close. You have a close relationship with supplier X, which is based on strong mutual commitment. You enjoy working with supplier X and find it easy and pleasurable to do business with the people you deal with in supplier X’s organization.

Relationship Quality: Not Close. Your relationship with supplier X is not close. Both you and supplier X are not strongly committed to the relationship. You benefit from working with supplier X, but you find it difficult to do business with the people you deal with in supplier X’s organization.

Part 3: Measures

Exit (adapted from Hibbard et al. (2001), Cronbach’s alpha = .617, after dropping the third item)

- My firm would (partially) leave the relationship with supplier X.
- My firm would weaken the relationship with supplier X.
- My firm would rely more on other toy suppliers. (dropped based on Cronbach’s alpha)

Coercive Power (adapted from Brown et al. (1995), Cronbach’s alpha = .600, after dropping the second item)

- I often hint to supplier X that I will take certain actions that will reduce the supplier’s profits if supplier X does not go along with my firm’s requests.
- I am able to withdraw from the relationship if supplier X does not go along with my firm’s requests. (dropped based on Cronbach’s alpha)
- If supplier X doesn’t agree with my firm’s suggestions, I could make things difficult for supplier X.

Switching Costs (adapted from Weiss & Anderson (1992), Cronbach’s alpha = .761, after dropping the first item)

- I believe that switching to a different supplier would not be expensive for my firm. (R) (dropped based on Cronbach’s alpha)
- I believe my firm faces high barriers to switch to a different supplier.
- I believe that changing to a different supplier would be difficult for my firm.

Confidence (adapted from Kumar et al. (1995), Cronbach’s alpha = .810)

- I believe that although circumstances change, supplier X will be ready and willing to offer my firm assistance and support.
- I believe that when making important decisions, supplier X is concerned about the welfare of my firm.
- I believe that when my firm shares problems with supplier X they will respond with understanding.
- I believe that in the future my firm can count on supplier X to consider how its decisions and actions will affect my firm.
- I believe that when it comes to things which are important to our firm, I can depend on supplier X’s support.

Conflict (adapted from Kumar et al. (1995), Cronbach’s alpha = .812)

- I feel anger.
- I feel frustration.
- I feel resentment.
- I feel hostility.
- A high degree of conflict exists between supplier X and my firm.
- Supplier X and my firm have major disagreements on certain key issues.

Notes: Measured on a scale of 1 = “strongly disagree,” and 7 = “strongly agree. (R) = reverse-scored item.

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