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Does the online direct channel cannibalize or synergize the retail Network? The moderating impact of retailer competitive strength

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ABSTRACT

Manufacturers in the retailing sector extensively use online sales points of their own, known as online direct channels. This form of manufacturer encroachment offers consumers the possibility to purchase directly from the manufacturer and hence may cannibalize retailer sales. However, it may also create synergy effects by increasing brand awareness, which may create additional retailer sales. In this research, we investigate the cannibalistic versus synergetic nature of the relationship between an established online direct channel and the retail network and assess whether retailer characteristics related to competitive strength impact this relationship. Using unique sales data from the toy industry and vector autoregressive modeling, we find that the short-term cross-channel price elasticity of online direct channels on retailer sales is negative and significant, indicating a synergetic relationship on average. However, the impact is heterogenous across retailers. Our analysis reveals that acquisition utility components of competitive strength, such as price and innovativeness, especially for large items, can enhance synergetic effects and mitigate the risk of cannibalization. Transaction utility components, such as online presence or the number of physical stores, do not play a moderating role.
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1. Introduction

In the retailing sector, many manufacturers operate a company-owned store next to an indirect network of retailers in order to sell directly to end-consumers (Ailawadi 2021; Wang, Bell, & Padmanabhan 2009). According to recent industry reports on retail disruptions, the practice of manufacturer direct selling is growing and should be "an important component of any brand's ecommerce portfolio" (Emarketer, 2021; Edge Retail Insight 2023). Of specific interest are the popular *online* direct channels, where manufacturers sell their products directly over the internet (Amrouche & Yan 2012). The popularity of (online) direct channels is not surprising, given manufacturers' increased focus on cost efficiency and customer orientation

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(Gielens & Steenkamp 2019; Sa Vinhas & Anderson 2005). However, the use of a plural channel system where both direct and indirect sales paths are used to sell products to end-consumers raises questions. Retailers often express concern about direct channels, as they worry about cannibalization. Manufacturers, in contrast, stress the benefits of their direct channels as billboards that support and generate retailer sales (Joseph 2014).

This phenomenon of plural channels where a *manufacturer* sells directly as well as indirectly has received some academic attention. It is an important research topic in a business-to-business (B2B) context, where manufacturing firms have both direct and indirect sales paths (through intermediaries like agents or brokers) to reach business consumers. In this context, academics and practitioners have realized that competition between sales paths is inevitable, as they are essentially targeting the same business consumer (Cespedes & Corey 1990). As a result, many B2B firms use boundaries and guidelines for their different sales paths to minimize competition, for instance by explicitly stipulating which type of consumer, which type of products, and/or which geographical area to serve per sales path (Moriarty & Moran 1990).

In contrast, manufacturers in the business-to-consumer (B2C) retailing sector typically do not openly set boundaries to minimize potential cannibalization of their (online) direct channel on the sales of their multi-brand retail partners (indirect sales channels). There are no boundaries for the type of consumer or geographical area to be served, especially not concerning an online direct channel that is accessible to all consumers in all places (Wang et al. 2009). While different sales channels may attract different segments of consumers, the manufacturer does not set rules to restrict the channels' access to them as is common in the B2B sector.

Depending on the differentiation strategy implemented by the manufacturer regarding its direct channel, there may also be no restrictions on the type of product offered. This is the case when the assortment offered in the webshop consists of all products sold by the indirect retail network (Rodríguez & Aydin 2015). Such a low differentiation strategy frequently happens in practice. For example, Samsung offers its complete electronic product range in its online direct channel (shop.samsung.com), and all fashion items under the Ralph Lauren brand can be bought directly in its webshop (ralphlauren.com). This form of manufacturer encroachment – where manufacturers directly compete with retailers with their own webshop – begs the need for a better understanding of the relationship between the two types of sales channels. This relationship may range from a purely cannibalistic, business-stealing relationship to a synergetic one, where the online direct channel creates extra demand from which the retailer profits.

In this research, we investigate the nature of this relationship through *cross-channel price elasticities* which measure how price changes in the online direct channel impact indirect retailer sales. In line with the brand competition literature that uses cross-brand price elasticities to capture the substitutive or complementary relationship between two brands (Blattberg & Wisniewski 1989; Bucklin, Russell, & Srinivasan 1998), cross-channel price elasticity can capture the full range of potential relationships between the online direct channel and retailers. Positive cross-channel price elasticities point to cannibalization, where retailer sales decrease when the direct channel decreases its price and thus becomes more attractive. Retailers have expressed concerns about such direct channel cannibalization (Tsay & Agrawal 2004), fearing manufacturers may take advantage of the recognizability of the manufacturer brand name to persuade consumers to purchase directly at retailers' expense. Negative cross-channel price elasticities point to synergy, where retailer sales go up when the direct channel's price decreases. Manufacturers have preached these synergetic impacts, claiming the direct channel strengthens brand awareness and serves as an acquisition engine, increasing retailer demand as well.

Apart from the sheer insight into which of these effects dominates, a second research objective is to shed light on the potential factors that explain cross-retailer variation in these cross-channel price elasticities. Drawing upon the literature on acquisition and transaction utility (e.g., Vroegrijk, Gijsbrechts, & Campo 2013), some retailers are expected to provide more utility to consumers and hence display more competitive strength. This may protect them from cannibalization or strengthen synergetic effects of the direct channel. To our knowledge, no empirical research exists that quantifies the cannibalistic versus synergetic relationship between an online direct channel and the retail network, nor on how this varies across retailers.

Given the popularity of online direct channels in the retailing sector and the controversy that so often surrounds the phenomenon, the limited attention to this phenomenon in the empirical marketing literature is surprising, as Ailawadi (2021) and Gielens and Steenkamp (2019) noted. This research gap may be attributed to the tension between retailers and manufacturers surrounding the direct sales practice, which makes both parties often protective of releasing objective measures (such as sales) on the matter (Geyskens, Gielens, & Dekimpe 2002). We remedy this gap using unique data from a real-life case where a (top toy) manufacturer sells through both an online direct channel and a retail network, and where the direct channel was introduced in the past and therefore is already well-adopted in the observation window. In line with Cleeren et al. (2010) and Zhu, Singh, and Manuszak (2009), we thus rely on a steady-state condition to infer the cannibalistic versus synergetic nature of the relationship long after any short-term disruption resulting from channel conflict at the moment of the direct channel entry.

Previewing our results, we find that an online direct channel has a negative and significant short-term cross-channel price elasticity on average, indicating that price decreases in the online direct channel also positively impact retailer sales (hence, a synergetic relationship). However, the impact is heterogenous. Retailer characteristics, such as price level and innovativeness, especially for large items, significantly moderate the synergetic relationship. Hence, for our case of an established online direct channel, the fears expressed about cannibalization do not seem to be echoed in our finding, which (on average) instead points to synergetic spillover and increases in retailer demand. Future research is needed to investigate the generalizability of this finding to other cases.

In addition to expanding empirical channel research on manufacturer encroachment, this finding has managerial relevance as well. For years now, retailers have denounced manufacturer encroachment based solely on conventional wisdom, fear of loss of business, and unfair competition. Manufacturers, in contrast, have downplayed these claims and emphasized that their direct channel has different capabilities that attract different segments of consumers and may create extra demand for their retail partners. By finding a synergetic relationship between the online direct channel and the retail network, we contribute to the debate and show that an online direct channel is not necessarily bad for other channels. By leveraging competitive strength characteristics, more specifically by having competitive prices for large items and by offering the latest new (large) items, retailers can nurture the market expansion possibilities that an online direct channel offers.

2. Literature review

Two main streams in previous channel literature are relevant to our topic: (i) literature on horizontal competition between retail channels, and (ii) literature on vertical competition due to manufacturer encroachment. While both share common ground with the issue explored here, there are several important gaps that we intend to fill. In both literature streams, we focus on research that studies the cross-channel impact on retailer sales. We summarize the relevant papers in Table 1. We elaborate on both streams and our unique contributions within this literature below.

First, as regards the effects of horizontal competition between retail channels, empirical channel research has long focused on the performance implications of standard channel structures, where retail channels compete horizontally with other retail channels, either those of rivals (i.e., inter-firm channel competition) or their own (i.e., intra-firm channel competition). Literature on inter-firm channel competition has looked at how incumbent retailers face the arrival and performance of rival retail players (e.g., Ailawadi et al. 2010; Cleeren et al. 2010; Singh, Hansen, & Blattberg 2006). Most of this research has established cannibalization and thus a loss of business for incumbent retailers.

Intra-firm channel competition research, in contrast, has focused on the interplay between channels of similar ownership. For instance, Ansari, Mela, and Neslin (2008) and Biyalogorsky and Naik (2003) explored the impact of retailers' own e-commerce initiatives on their more traditional sales sources, such as an offline store or a catalog. More recent studies have explored the opposite direction where former online-only stores now sell through brick-and-mortar stores as well (e.g., Avery et al. 2012; Pauwels & Neslin 2015;Van Crombrugge et al. 2024; Wang & Goldfarb 2017). While these intra-firm studies suggest a potential for cannibalization, they also highlight how channel differentiation may stimulate synergetic effects and that brand awareness and deepened brand associations from other channels may induce market expansion (Avery et al. 2012; Van Crombrugge et al. 2024).

However, neither inter-firm nor intra-firm channel competition literature has looked at the context in which the different sales channels in the portfolio are owned and operated by players at different stages of the supply chain (i.e., a manufacturer and different retailers). It is not difficult to see how our context of vertical competition fits the narrative of both lines of research, with the direct channel acting both as a competitor in the market and as part of the brand's distribution portfolio at large. As a result, it is not clear whether the relationship between the online direct channel and retail channels will be dominated by a damaging cannibalization effect, or whether different channel capabilities lead to market expansion and a synergetic effect. Our research is the first to empirically demonstrate which effect prevails.

The second relevant research stream explicitly focuses on vertical competition due to manufacturer encroachment, but it has not *empirically* explored the (cannibalistic vs. synergetic) nature of the relationship between the direct channel and the retail network.[1] A first set of studies, such as Arya, Mittendorf, and Sappington (2007), Chiang, Chhajed, and Hess (2003), and Tsay and Agrawal (2004), game-theoretically analyzed the effect of the direct channel on the retail network. These studies show that, in a stylized setting, the potential cannibalization effect of the direct channel on retailers may be compensated by benefits such as increased channel coordination or wholesale price reduction. Later game-theoretic research, however, questioned this optimism and revealed that, in certain circumstances, as in environments with asymmetric information (Li, Gilbert, & Lai 2014) or competitive supply chains (Li, Xie, & Zhao 2015), a 'lose–lose' outcome is the more likely result. The analytical game-theory literature on the matter has provided proof that both forms of distribution can, under some circumstances, coexist. However, this research is reliant on the assumptions underlying the estimated models, and empirical support for the models is often limited.

Parallel to these analytical models, manufacturer encroachment has also been investigated in perceptual studies. Here, manufacturers and retailers were surveyed on the antecedents and consequences of cannibalization caused by the direct channel, often in a B2B context. As a result, focus mostly remained on supply-side issues such as the management of plural channel systems to minimize potential cannibalization between the different channels. A number of studies found a rationale for the existence of plural channel systems, such as fulfilling varying customer needs (Jindal et al. 2007) or safeguarding against information asymmetry (e.g., Dutta et al. 1995). Others, however, found that it is suspicion of a tilted playing field that causes intra-brand cannibalization (e.g., Sa Vinhas & Anderson 2005; Sa Vinhas & Heide 2015). In that case, corrective

[1] Only two vertical competition papers use secondary data. Deleersnyder et al. (2002) investigate the impact of a newspaper website on retail channel sales. However, in their study, the products offered in the different channels were different (i.e., digitized versus materialized content), which differs from our setting in which both the direct channel and the retail network offer the same product. Van Crombrugge et al. (2024) investigate the impact of a brand store entry by a digital native brand on the brand's supermarket sales. This differs from our setting in which the manufacturer's products were first offered in the retail network and only later went direct via an online channel. In addition, neither of these papers included moderating retailer characteristics.

Table 1
Literature Review Table.

	Channel Competition that is:			Moderation of Retailer Competitive Strength	Approach	Summary of Relevant Findings
	Horizontal Intra-Firm	Horizontal Inter-Firm	Vertical			
Horizontal competition literature						
Ailawadi et al. 2010		✓		Size, Profitability, Growth, Proximity to Entrant	Secondary data	Wal-Mart entry decreases incumbent retailer sales. Incumbents that have greater proximity or assortment overlap with Wal-Mart suffer more. Incumbents can proactively adjust their marketing mix activities to mitigate the negative impact of entry.
Ansari et al. 2008	✓				Secondary data	Marketing effects lead to a migration to the Web. Migrating customers are not inherently heavy users who are attracted to the Web, and Web experience is associated with lower future sales volume. There is a negative long-term association between internet usage and sales and limited loyalty effects for purchases made on the internet.
Avery et al. 2012	✓				Secondary data	Brick-and-mortar store entry decreases sales in the catalog in the short run and increases sales in the online channel and catalog in the long run, partially by bringing in more first-time customers.
Biyalogorsky & Naik 2003	✓				Secondary data	A retail channel's online sales do not cannibalize its offline sales. Instead, its online activities increase their long-term online equity.
Cleeren et al. 2010	✓	✓			Secondary data	From the third entrant onward, grocery discounters display strong inter-format competition with traditional supermarkets, and even stronger intra-format competition with each other.
Gielens et al. 2008		✓		Size, Profitability, Financial Leverage	Secondary data	Wal-Mart entry decreases most incumbent retailers' performance and is negatively affected by retailers' degree of overlap in assortment, positioning, and country of entry. Retailers that are larger and have more organizational experience are impacted less.
Maier & Wieringa 2021		✓		Assortment size, Price Level	Secondary data	Marketplace sales increase sales on a retailer's website. This effect is strongest in categories with low prices and a large product assortment.
Melis et al. 2015	✓	✓		Price Level, Assortment Attractiveness	Secondary data	Offline store customers select same-chain online stores at the start of multichannel shopping but focus on online assortment attractiveness and online loyalty in their online store choice as their multichannel experience increases.
Melis et al. 2016	✓			Online-Offline Marketing Mix Integration	Secondary data	Multichannel grocery shopping increases customers' share of wallet allocated to the online-visited chain. This expansion is stronger when the chain better integrates its price and assortment across its online and offline channels.
Pauwels & Neslin 2015	✓				Secondary data	Brick-and-mortar store entry decreases sales in the catalog due to lower order frequency, but not online. Across all channels, total return and exchange frequency increase, but this is compensated by an increased total order frequency.
Singh et al. 2006		✓			Secondary data	Wal-Mart entry decreases incumbent retailer sales. The decrease is driven by fewer incumbent retailer visits, in particular from its best customers.
Vroegrijk et al. 2013		✓		Chain Complementarity, Upscale vs. Price-Oriented	Secondary data	The entry of hard discounter retailers decreases traditional incumbent retailer sales, driven by store switching of private label-prone, multiple-store shoppers. Stores that are upscale and are complementary in their price and assortment with the discounter better withstand these losses.
Wang & Goldfarb 2017	✓				Secondary data	Brick-and-mortar store entry decreases online sales and search where brick-and-mortar stores already exist but increases them where they do not. This is attributed to an awareness-focused billboard effect.
Zhu et al. 2009		✓			Secondary data	Wal-Mart's competitive effects on Kmart and Target are more severe than vice versa. Target is able to withstand part of the competition by focusing on atypical markets.
Vertical competition literature						
Arya et al. 2007			✓		Analytical model	Incumbent retailers benefit from a manufacturer's direct channel entry through a decreased wholesale price when the direct channel provides no synergies and does not facilitate product differentiation or price discrimination.
Balasubramanian 1998			✓		Analytical model	In markets with full information, a manufacturer's direct channel competes more with incumbent retailers than that incumbent retailers compete against each other. As consumer information regarding the direct channel decreases, retailers compete more with each other.

Table 1 (*continued*)

	Channel Competition that is:			Moderation of Retailer Competitive Strength	Approach	Summary of Relevant Findings
	Horizontal Intra-Firm	Horizontal Inter-Firm	Vertical			
Chiang et al. 2003			✓		Analytical model	When the entry of a manufacturer's direct channel is a viable threat to an incumbent retailer's sales, it induces the retailer to lower its price, which, in turn, increases sales in the retail channel.
Deleersnyder et al. 2002			✓	Product Differentiation	Secondary data	Internet channel additions in the newspaper industry mostly do not impact offline newspaper circulation or advertising revenue. When the new channel is positioned as too similar to the incumbent product, cannibalization is more likely.
Gielens & Steenkamp 2019		✓	✓		Conceptual paper	Digital (dis)intermediation to brands can take four forms: digital transaction intermediation tied to ecommerce retailers, digital transaction disintermediation tied to direct-to-consumer (D2C) models, digital marketing intermediation tied to D2C brand-building models, and digital marketing intermediation tied to consumer-to-consumer (C2C) models.
Hotkar & Gilbert 2021			✓	Product Differentiation	Analytical model	When two manufacturers sell substitutable products through a nonexclusive reseller and one of them sells directly, the direct channel's role is to push more reseller volume and provide an alternative to wholesale price competition with its rival. As the manufacturer's direct cost decreases or substitutability increases, this becomes more important.
Kumar & Ruan 2006			✓	Store Loyalty	Analytical model	The success of integrating a manufacturer's direct online channel depends on the retailer's support for the manufacturer's product, which is influenced by its margins compared to competitors. If brand loyalty is low, manufacturers can reduce wholesale prices to boost retail support. If not, higher wholesale prices are more profitable, even with lower retail support.
Li et al. 2014			✓	Market Information	Analytical model	The entry of a manufacturer's direct channel can result in costly signaling behavior by the reseller, in which it reduces its order quantity when the market size is small. Such a downward order distortion can amplify double marginalization. In that case, manufacturer encroachment can lead to "lose–lose" and "lose–win" outcomes.
Rodriguez et al. 2015			✓		Analytical model	A manufacturer's direct channel may lead to differentiated changes in wholesale price and assortment; items with higher demand variability will have a lower wholesale price attached to them. The manufacturer may prefer that the retailer carry items with high demand variability while the retailer prefers items with low demand variability.
Sa Vinhas & Anderson 2005			✓	Product Differentiation	Survey data	Under specified circumstances, B2B manufacturers' simultaneous use of own direct and third-party indirect channels means that both compete, either because both target the same customer or because the customer sets them in competition against each other. In that case, firms reduce their use of concurrent channels to prevent channel conflict.
Sa Vinhas & Heide 2015			✓	Product Differentiation, (Resource) Independence	Survey data	Competition with a manufacturer's direct channel increases distributor opportunism but can benefit the distributor's end customers. Manufacturer initiatives to create vertical separation between channels limit competition but also reduce end customer satisfaction.
Tsay & Agrawal 2004			✓		Analytical model	The addition of a manufacturer's direct channel to a reseller channel can lead the manufacturer to reduce the wholesale price to retain some of the reseller's selling effort, and in some cases, this can make both parties better off.
Van Crombrugge et al. 2024	✓		✓		Secondary data	Company-owned brand store entry increases a brand's incumbent supermarket sales and cannibalizes incumbent online direct channel sales. Own-brand store sales compensate the online channel losses.
Wang et al. 2009			✓		Analytical model	When independent retailers compete against manufacturer direct channels, they charge higher prices and are more willing to engage in marketing efforts on behalf of the manufacturer's brand.
Our paper			✓	Price Positioning, Assortment Size, Innovativeness, Online (vs. B&M), Number of Stores	Secondary data	On average, a direct channel has a synergetic impact on the sales of the focal brand in the retail network. However, the impact is heterogenous across retailers. Acquisition utility components of competitive strength such as price and innovativeness, especially for large items, can enhance synergies. Transaction utility components, such as online presence or the number of stores, do not offer a strategic advantage.

actions like compensation, differentiated offerings, or other forms of vertical market separation (such as boundaries on the type or geographical location of consumers) may serve as defusing measures to minimize cannibalization between the channels. Although this survey research has provided important insights on manufacturer encroachment, it has not given empirical insights on the cannibalistic versus synergetic effects of the direct channel on retailers.

Finally, existing literature has only limitedly pointed to retailer heterogeneity. The literature on inter-firm horizontal channel competition suggests that powerful retailers (measured in terms of size, profitability, or financial leverage) can better fend off competition by rival retailers (e.g., Ailawadi et al. 2010; Gielens et al. 2008). The limited literature on moderating effects in intra-firm horizontal channel competition has pointed to the relevance of marketing mix instruments like price or assortment level in explaining cross-retailer differences (Melis et al. 2015; 2016). Most of the vertical competition literature is similarly silent as to which tools retailers have at hand to limit cannibalization. The few papers that did explore retailer heterogeneity (Sa Vinhas & Anderson 2005; Sa Vinhas & Heide 2015) pointed to assortment (notably product differentiation) as an effective measure. We build on this prior research to more systematically study cross-retailer variation in the relationship between an online direct channel and retailers.

3. Conceptual development

We investigate the (cannibalistic vs. synergetic) nature of the relationship between a manufacturer's online direct channel and retailers by using *cross-channel price elasticities* that capture the effect of a price change in the online direct channel on retailers' sales of the focal brand (see Fig. 1). A (more) positive cross-channel price elasticity suggests a (more) positive effect of a price increase in the direct channel on retailers' sales and, hence, a (stronger) cannibalization effect of the direct channel on the retail network. In contrast, a (more) negative cross-channel price elasticity suggests a (more) negative effect of a price increase in the direct channel on retailers' sales and, thus, a (stronger) synergetic effect of the direct channel on the retail network.

To explore cross-retailer variation in the relationship with the direct channel, we relate per-retailer estimated cross-channel price elasticities to retailer competitive strength characteristics. We first discuss arguments for the main effect and next develop hypotheses on how characteristics of retailer competitive strength moderate this main effect.

3.1. Nature of the relationship between the online direct channel and the retail network

The online direct channel may pose as much of a threat to retailers as it offers an opportunity. On the one hand, the direct channel may steal business from retailers and hence destroy performance just as any other competitive channel in the market. A sale in one channel cannot happen in the other, especially in a case where different channels are typically not limited by boundaries on the type of consumer served or the type of product offered. Additional channels also diversify consumers' options and allow them to pit one channel against the other (Coughlan et al. 2006). In the case of direct channels, this risk of cannibalization may be even more severe compared to regular retail rivals, as manufacturers may take advantage of their brand name and its impact on awareness, quality perception, and ultimately patronage decisions to persuade consumers to purchase directly from them at the expense of the retailer (Grewal et al. 1998). Search engines and consumer minds may link easier to the store that actually has its name on the box.

On the other hand, the direct channel may also provide opportunities and ultimately increase retailer sales. Indeed, as the digital flagship store in the brand's larger distribution portfolio, the direct channel may expand the market by attracting other customers via a spillover of brand awareness and positive brand associations from the online direct channel to the retailers (Avery et al. 2012). Previous research has found that direct channels provide significantly more marketing efforts, relative to independent retailers (Wang et al. 2009). The direct channel, and any marketing associated with it, could therefore serve as a self-funding billboard that increases awareness of the brand and category (Avery et al. 2012; Van Crombrugge et al. 2024). This way, retailers may benefit from the direct channel because of its synergetic, demand-enhancing effects and the market expansion that may follow.

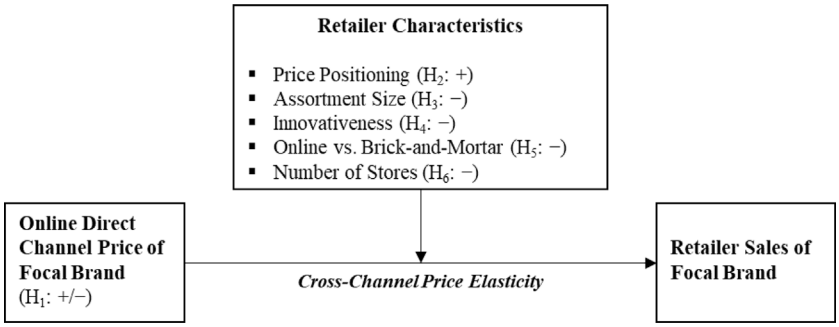


Fig. 1. Conceptual Framework.

Given these opposing effects, the question of whether, in general, the direct channel cannibalizes or creates synergetic effects for retailers that have the brand in their portfolio does not have a straightforward answer. Therefore, we form two opposing hypotheses:

H_{1a}: The cannibalization effect dominates, and hence, the average cross-channel price elasticity that captures the effect of the online direct channel price on retailer sales of the focal brand is positive.

H_{1b}: The synergetic effect dominates, and hence, the average cross-channel price elasticity that captures the effect of the online direct channel price on retailer sales of the focal brand is negative.

3.2. Moderating impact of retailer characteristics linked to competitive strength

Previous research on horizontal and vertical channel competition has provided some indications that the consequences of competition are not the same for all retailers (Ailawadi et al. 2010; Gielens et al. 2008; Melis et al. 2015; 2016; Sa Vinhas & Anderson 2005; Vroegrijk et al. 2013). Building on these findings, we expect that some retailers may be better able to withstand cannibalization or leverage synergetic effects from the direct channel than others. We argue that this depends on retailer characteristics that drive consumer store choice. Previous research on store choice and multichannel shopping has demonstrated that the decision to visit a store (channel) can be explained by shopping utility maximization principles (Melis et al. 2015; Vroegrijk et al. 2013).

Specifically, when deciding which store (channel) to visit, consumers trade off acquisition utility (the perceived value for money when acquiring the products) and transaction utility (the (dis)utility derived from transferring the products from the store/channel to home) (Campo & Breugelmans 2015; Vroegrijk et al. 2013). Retailers that provide the greatest total (acquisition and transaction) utility are more likely to be selected by consumers. These retailers are then expected to be able to better differentiate from competitors and thus have more competitive strength to withstand cannibalization from the online direct channel. At the same time, these retailers are better able to capitalize on the synergetic effects that are triggered by the direct channel's billboard features, as they will be able to attract a larger pie of the sales generated by the direct channel. In what follows, we use the literature on store choice to infer characteristics that influence retailer competitive strength and play a moderating role.

In line with prior research by, for instance, Ailawadi, Pauwels, and Steenkamp (2008) and Vroegrijk et al. (2013), five retailer characteristics playing important roles in consumer store choice can be derived: (i) the retailer's price positioning (i.e., the average price of the focal brand), (ii) the retailer's assortment size (i.e., the total number of available items of the focal brand), and (iii) the retailer's innovativeness (i.e., the number of new items of the focal brand) capture the costs that consumers infer and the benefits they receive (i.e., acquisition utility). Transaction utility, or the disutility from the shopping activity, is captured through (iv) whether the retailer is an online (vs. brick-and-mortar) retailer,[2] and (v) the number of brick-and-mortar stores as a proxy for the distance required to travel. Compared to retailers with lower acquisition and/or transaction utility, retailers that provide higher total utility are more likely to prevent current customers from switching to the online direct channel and are better able to nurture the positive spillover effects. Therefore, characteristics that boost acquisition and transaction utility negatively moderate the effect of the direct channel's price on retailer sales, regardless of the direction of the main effect. Positive cross-channel price elasticities (pointing to cannibalization) become weaker, and negative cross-channel price elasticities (pointing to synergetic effects) become stronger. In what follows, we develop hypotheses on the moderating impact of the aforementioned retailer characteristics.

Price positioning. High prices present a disutility to consumers (Ailawadi et al. 2008). The lower acquisition utility associated with higher-priced retailers therefore decreases their attractiveness in the eyes of consumers. This implies that lower-priced retailers are better protected against the direct channel's cannibalization effects, as their lower price positioning of the focal brand makes the channel more attractive than the generally higher-priced direct channel (Wang et al. 2009). Lower-priced retailers may also be better able to draw in new customers, making maximum use of the billboard effect of the direct channel. The higher acquisition utility associated with lower-priced retailers consequently suggests higher odds of withstanding the cannibalization and higher odds of leveraging the synergy of an online direct channel. In contrast, higher-priced retailers will be more susceptible to cannibalization from the direct channel and less likely to draw in new customers. Hence:

H_2: A retailer's average price positioning of the focal brand positively impacts the cross-channel price elasticity that captures the effect of the direct channel price on retailer sales of the focal brand.

Assortment size. Larger assortments are known to increase the acquisition utility associated with a retailer (Vroegrijk et al. 2013). Offering a larger assortment of the focal brand decreases the disadvantages of the retailer assortment versus the offering of the online direct channel, which generally carries a full assortment of its own (Rodríguez & Aydin 2015). A larger assortment may therefore appeal to consumers and prevent them from switching to the online direct channel as, assortment-wise at least, there is not a lot to gain. Previous literature has suggested that large assortments can serve as protective measures in other competitive situations between manufacturer and retailer, such as stock-outs (e.g., Campo,

[2] Some retailer chains operate through both on– and offline channels. We treat the online retailer channel and brick-and-mortar retailer channel as separate entities to understand which type of retailer channel suffers more from cannibalization effects or experiences more synergetic effects.

Gijsbrechts, & Nisol 2000) and conflict delistings (e.g., Van der Maelen, Breugelmans, & Cleeren 2017). Furthermore, a larger offering is more appealing to new customers, including those who may spill over from the direct channel, as the retailer's assortment depth of the focal brand increases the odds of these customers finding what they need (Ailawadi & Keller 2004). This is in line with research suggesting that larger assortments provide significantly higher shopping benefits (Gijsbrechts, Campo, & Nisol 2008) and help attract a larger number of customers (Draganska & Klapper 2007). Hence:

H_3: A retailer's assortment size of the focal brand negatively impacts the cross-channel price elasticity that captures the impact of the direct channel price on retailer sales of the focal brand.

Innovativeness. Offering many new items shows that the retailer aims to specialize in the brand by having an up-to-date assortment (McGoldrick 2002). Indeed, such dedicated retailers may more prominently feature and market the brand (Slotegraaf & Pauwels 2008) and may have better-trained sales staff to support customers in making a final decision (Goudge et al. 2017). Additionally, the prominence of a brand with availability of the latest items in the assortment may cause consumers to create a signature association between the retailer and the brand (Inman, Shankar, & Ferraro 2004). Customers, including new customers that are attracted by the direct channel, are thus more likely to consider highly innovative retailers. Hence:

H_4: A retailer's innovativeness in the assortment of the focal brand negatively impacts the cross-channel price elasticity that captures the effect of the direct channel price on retailer sales of the focal brand.

*Online (*vs. *brick-and-mortar).* Whether the retailer channel is online versus brick-and-mortar will determine the costs associated with transferring the products from the store to home and thus transaction utility (Vroegrijk et al. 2013). Online retailer channels have some distinct advantages over brick-and-mortar retailer channels, especially concerning availability and geographic reach (Pitt, Berthon, & Berthon 1999). Facing the (also online) direct channel, the online retailer channel's potential for a larger and continuous market coverage may increase their utility in contrast to less flexible brick-and-mortar alternatives. Less travel costs and no fixed shopping hours indeed lead to a higher transaction utility for online retailer channels compared to brick-and-mortar retailer channels. This helps decrease potential cannibalization effects of the online direct channel. We also expect online retailer channels to have an advantage in leveraging the potential synergetic effects. Permanent accessibility and close proximity – a mere mouse click away – make it easier for new customers of the direct channel to transition to an online retailer channel following their earlier experience in the online direct channel (Melis et al. 2015). Hence:

*H_5: Whether a retailer is an online (*vs. *a brick-and-mortar) retailer negatively impacts the cross-channel price elasticity that captures the effect of the direct channel price on retailer sales of the focal brand.*

Number of stores. For brick-and-mortar retailers, transaction utility is also defined by the distance that consumers are required to travel to the stores (Vroegrijk et al. 2013). Retailers with a larger number of stores are likely to be associated with a higher transaction utility for the average consumer because stores are in closer proximity for more consumers. A larger number of stores leads to an increased geographical availability, which facilitates the search for stores and lowers the cost of travel (Bucklin, Siddarth, & Silva-Risso 2008). Among the online direct channel's advantages is the capability to be bought irrespective of location. As brick-and-mortar stores lack this advantage, location and accessibility are of crucial importance (Avery et al. 2012). A higher accessibility advantage may therefore decrease the appeal of online alternatives, including the online direct channel. At the same time, a larger number of stores also leads to additional market coverage and the potential to target new and broader customer segments (Homburg, Vollmayr, & Hahn 2014; Reibstein & Farris 1995). The greater the proportion of the market covered, the greater the odds of catching any sales or awareness created by the direct channel. In line with the age-old law of retail gravitation (Reilly 1931), we therefore hypothesize:

H_6: A retailer's number of stores negatively impacts the cross-channel price elasticity that captures the effect of the direct channel price on retailer sales of the focal brand.

4. Methodology

To obtain the cross-channel price elasticities that measure the impact of the online direct channel's price on the retailer sales of the focal brand, we estimate vector autoregressive (VAR) models. These are ideally suited for our study for two reasons. First, endogenous treatment of the sales and marketing mix variables ensures that lagged effects and (lagged) cross-effects are captured, contemporaneous error correlations between the different equations are allowed for, and endogeneity between sales and (past) marketing actions is accounted for (Nijs, Srinivasan, & Pauwels 2007). Second, VAR models can capture the complex feedback loops that influence direct channel and retailer sales over time. For example, a drop in the online direct channel's price may increase the direct channel's sales, which may make consumers accustomed to that channel. As a result, customers may buy the brand less often at the retailer at later points, ultimately reflecting a decrease in retailer sales over time. Because of feedback loops like these, it is important to look beyond the immediate impact and consider the response of all effects and counter-effects over time.

In line with Colicev et al. (2018) and Hewett et al. (2016), our empirical approach consists of two parts: we estimate (1) a hierarchical panel VAR model, and (2) separate VAR models per retailer. The panel VAR model and the meta-analytical effect across the per-retailer VAR models both give an indication of the average relationship between the online direct channel and

retailers and help determine whether the cannibalization or synergetic effect dominates (H_{1a} versus H_{1b}). The per-retailer VAR models are used to investigate how cross-retailer variation in the cross-channel price elasticities are driven by retailer competitive strength (H_2–H_6).

4.1. Hierarchical panel VAR model

We start from a ten-equation hierarchical panel VAR model as specified in Equation (1):

$$\begin{bmatrix} \ln(RetailSales_{rm,t}) \\ \ln(DirectPrice_{rm,t}) \\ \ln(DirectSales_{rm,t}) \\ \ln(RetailCompSales_{rm,t}) \\ \ln(RetailPrice_{rm,t}) \\ \ln(RetailCompPrice_{rm,t}) \\ \ln(RetailAssort_{rm,t}) \\ \ln(DirectAssort_{rm,t}) \\ \ln(RetailCompAssort_{rm,t}) \\ \ln(Advertising_{rm,t}) \end{bmatrix} = A_{rm} + \Omega \begin{bmatrix} TREND1_{m,t} \\ TREND2_{m,t} \\ HOLIDAY1_{m,t} \\ HOLIDAY2_{m,t} \end{bmatrix} + \sum_{k=1}^{K} \begin{bmatrix} \beta^k_{rm,1,1} & \cdots & \beta^k_{rm,1,10} \\ \vdots & \ddots & \vdots \\ \beta^k_{rm,10,1} & \cdots & \beta^k_{rm,10,10} \end{bmatrix} \begin{bmatrix} \ln(RetailSales_{rm,t-k}) \\ \ln(DirectPrice_{rm,t-k}) \\ ln(DirectSales_{rm,t-k}) \\ ln(RetailCompSales_{rm,t-k}) \\ ln(RetailPrice_{rm,t-k}) \\ ln(RetailCompPrice_{rm,t-k}) \\ \ln(RetailAssort_{rm,t-k}) \\ \ln(DirectAssort_{rm,t-k}) \\ \ln(RetailCompAssort_{rm,t-k}) \\ \ln(Advertising_{rm,t-k}) \end{bmatrix} + \begin{bmatrix} \varepsilon_{R_{rm,t}} \\ \varepsilon_{DP_{rm,t}} \\ \varepsilon_{D\,rm,t} \\ \varepsilon_{RC\,rm,t} \\ \varepsilon_{RP\,rm,t} \\ \varepsilon_{RCP\,rm,t} \\ \varepsilon_{RA\,rm,t} \\ \varepsilon_{DA\,rm,t} \\ \varepsilon_{RCA\,rm,t} \\ \varepsilon_{AD\,rm,t} \end{bmatrix} \quad (1)$$

The two focal endogenous variables included in our model to calculate cross-channel price elasticity are (1) the retailer sales value of the focal brand at retailer r in market m in week t ($RetailSales_{rm,t}$), and (2) the average price of the focal brand in the online direct channel in market m of retailer r in week t ($DirectPrice_{rm,t}$). Aside from these focal variables, we include a number of control variables for three relevant parties: retailer r, the focal brand's online direct channel, and the other competing retailers. First, we control for (3) the sales value of the focal brand's direct channel in market m of retailer r in week t ($DirectSales_{rm,t}$), and (4) the total sales value of the focal brand at the competing retailers of retailer r in market m in week t ($RetailCompSales_{rm,t}$), as sales in these other channels may also impact the sales of retailer r. Second, we control for (5) the average price of the focal brand at retailer r in market m in week t ($RetailPrice_{rm,t}$) and (6) the average price of the focal brand at the competing retailers of retailer r in market m in week t ($RetailCompPrice_{rm,t}$), as the price of the focal brand in these channels may also impact the sales of retailer r. Aside from price, we control for each channel's assortment by including (7) the assortment size of the focal brand at retailer r in market m in week t ($RetailAssort_{rm,t}$), (8) the assortment size of the focal brand at the direct channel in market m of retailer r in week t ($DirectAssort_{rm,t}$), and (9) the assortment size of the focal brand at the competing retailers of retailer r in market m in week t ($RetailCompAssort_{rm,t}$). Finally, we control for (10) the total advertising expenditures of the focal brand in market m of retailer r in week t ($Advertising_{rm,t}$).[3] All variables are log-transformed to ease interpretation. As is common, we add one to continuous variables to avoid taking the logarithm of zero (Nijs et al. 2001).

The model also includes a vector of retailer-specific intercepts A_{rm} and a vector of exogenous variables that includes a time trend per market to reflect the difference between the two markets in our sample and two holiday dummy variables to account for the sales peaks during the holiday period in the focal category (i.e., Toys). To test whether our endogenous variables are evolving or stationary and enter the model in, respectively, differenced or level form, we perform Fisher-type panel unit root tests (Choi 2001). We report the inverse normal Z statistics in Web Appendix A. In the presence of a unit

[3] Due to data unavailability on retailer-specific advertising spending of the focal brand, advertising is expressed as the focal brand's advertising spending. This value is thus the same for all retailers active in the market.

root, variables were included in the models in differences (Dekimpe & Hanssens 1999). After differencing, unit root tests indicated that all time-series were stationary.

The joint estimation of the system of equations is implemented based on hierarchical Bayesian estimation (e.g., Horváth & Fok 2013). That is, we assume $A_{rm} \sim N(A, \sigma_A)$, $\beta_{rm} \sim N(\beta, \sigma_\beta)$ and $\epsilon_{rm,t} \sim MVN(0, diag(\tau_r)\Omega_{rm}diag(\tau_r))$ where $\Omega_{rm} = \rho\Omega_{global} + (1-\rho)\Omega_{rm,local}$ and $\tau_{rm} \sim N^{+}(\tau, \sigma_\tau)$. Here, the covariance matrix Ω_{rm} is estimated using a shrinkage estimator (e.g., Kim, Lee & Gupta 2020) to allow for (partial) pooling across retailers. A standard panel VAR assumes homogeneous parameters (Colicev et al. 2018; Hewett et al. 2016). Pooling tests (Baltagi 2008; Leeflang & Wieringa 2010), however, show that pooling across retailers or markets is not allowed. Therefore, we use a hierarchical Bayesian estimation method, via which we accommodate heterogeneity in the VAR parameters. To complete the model, we specify normal priors for A, β, and τ, Cauchy(0,1) priors for the scale parameters σ_A, σ_β, and σ_τ, LKJ priors for the matrices Ω, and a Beta(2,2) prior for ρ. The model is implemented in the Stan language[4] and estimated using Hamiltonian Monte Carlo (HMC). To determine the optimal lag length *K* of the hierarchical panel VAR model, we estimate the model for different lag lengths one to four and select the model based on the expected log predictive density (Vehtari, Gelman, & Gabry 2017). The model with *K*=1 lag shows the best fit. The fitted model did not suffer from non-normality nor heteroscedasticity based on Anderson-Darling and Breusch-Pagan tests.

VAR models not only capture the direct impact of one endogenous variable on the other but also include the indirect feedback effects through the other included variables. To provide clear insight into the average cannibalistic versus synergetic relationship between the online direct channel and a retailer, we look at the combined response of all measures and countermeasures, which can be found through the associated generalized impulse response functions (GIRFs) (see Nijs et al. (2001) and Srinivasan, Vanhuele, and Pauwels (2010) for a similar practice).[5] The GIRFs trace the cumulative impact of a one-standard deviation impulse in one variable on all other endogenous variables in the model.

In this study, we use the estimated effects from the GIRF of sales of the focal brand for an average retailer following an impulse in the price of the online direct channel, in line with common practice in the competition literature (van Heerde, Srinivasan, & Dekimpe 2010). Given the log–log specification of our model, the performance impact estimate can directly be interpreted as the cross-channel price elasticity (Christen et al. 1997; Nijs et al. 2001). Because no long-term effects were found (the focal performance variable of retailer sales value is stationary; see Table WA.1 in Web Appendix A), we focus on the short-run effect and calculate the overall cross-channel price elasticity as the cumulative impact of the immediate and dust-settling effects. The length of the dust-settling period equals the number of periods preceding four consecutive periods of non-significant effects (Nijs et al. 2001). To determine the statistical significance of the GIRF estimate, we construct confidence intervals based on the draws across HMC chains, in line with Horváth and Fok (2013).

4.2. Per-Retailer VAR models

We also estimate per-retailer VAR models to assess the impact of retailer competitive strength characteristics. This estimation procedure consists of two stages. In the first stage, we estimate frequentist VAR models and GIRFs as specified in Equation (1), but now per retailer. Given that the procedure is very similar to that outlined above, we highlight a few key differences that come with the per-retailer estimation. For the per-retailer VAR models, lag length *K* is set to a maximum of one lag to maintain a desired observation-to-parameter ratio of 5 (Leeflang et al. 2013). For the unit root tests, we test for stationarity per variable and for each retailer separately, using augmented Dickey–Fuller unit root tests. In the presence of a unit root, variables were included in differences (Dekimpe & Hanssens 1999). We test for the presence of autocorrelation through Ljung–Box tests. The results showed model residuals to be white noise in 97 % of the series, a percentage that is higher than the 95 % value we would expect out of chance. Testing for normality using the Anderson–Darling test and for heteroscedasticity using the Breusch–Pagan test did not reveal violations of these assumptions.

Based on the per-retailer VAR models, we derive per-retailer GIRFs to calculate retailer-specific cumulative cross-channel price elasticities. To get an indication of the average relationship between the online direct channel and retailers, and thus to confirm the conclusion derived from the hierarchical panel VAR model on whether the cannibalization or synergetic effect dominates, we use meta-regressions (Borenstein et al. 2021). Specifically, we use multilevel random-effects meta-regressions because (1) our dependent variable is estimated, (2) our observations come from selected retailers with different underlying customer bases, resulting in different populations (Borenstein et al. 2021, p.77), and (3) retailers are nested within markets.

We run these meta-regressions on the per-retailer cross-channel price elasticities with an intercept alone to derive the meta-analytical average. Next, we include retailer characteristics that measure competitive strength to investigate the moderating impact of these characteristics, as shown in Equation (2) for retailer *r* in market *m*:

$$\begin{aligned} Cumulative\ Cross-Channel\ Price\ Elasticity_{rm} = {} & \beta_0 + \beta_1 PricePositioning_{rm} + \beta_2 AssortmentSize_{rm} + \beta_3 Innovativeness_{rm} \\ & + \beta_4 Online_{rm} + \beta_5 NumberOfStores_{rm} + \zeta_{rm} + \eta_m + \varepsilon_{rm} \end{aligned} \quad (2)$$

[4] See https://khakieconomics.github.io/2016/11/27/Hierarchical-priors-for-panel-vector-autoregressions.html for the example code for this model implementation in the Stan language.

[5] We use *generalized* impulse response functions to ensure the order-invariance of the variables in the VAR model (Pesaran and Shin 1998).

Here, ζ_{rm} is a normally distributed random effect independent of ε_{rm} that accounts for between-retailer heterogeneity. Sampling variances of ε_{rm} are fixed to the known (squared) standard errors of the first-stage estimates to account for the estimated nature of our cross-channel price elasticities,[6] which allows for identification of both ζ_{rm} and ε_{rm}. The random effect η_m accounts for between-market variation.

$PricePositioning_{rm}$ refers to the average price positioning of the focal brand at retailer r in market m, $AssortmentSize_{rm}$ refers to the average number of items of the focal brand in the assortment at retailer r in market m, $Innovativeness_{rm}$ measures the average weekly number of new items of the focal brand in the assortment of retailer r in market m, $Online_{rm}$ is a dummy variable that equals 1 if retailer r in market m is an online retailer channel and 0 otherwise, and $NumberOfStores_{rm}$ refers to the number of brick-and-mortar stores of retailer r in market m (this variable is 0 when the retailer is an online retailer channel). These variables are operationalized across the entire observation period and capture the time-invariant position of the retailer (this is different from the endogenous price and assortment variables included in the VAR models, which capture the variation over time). All continuous moderators are mean-centered, so the intercept is the effect with continuous variables at their mean. More details on the operationalization can be found in the Data section. We find no evidence for violations of the regression assumptions on normality and homoscedasticity based on the Anderson–Darling and Breusch–Pagan tests, and the maximum variance inflation factor is well below the cut-off of 10 (6.46) (Hair et al. 2014).

5. Data

We use data from a leading toy manufacturer that sells its brand through a vast network of (online and brick-and-mortar) retailer channels and a direct, online webshop owned and operated by the manufacturer itself.[7] The online direct channel was introduced well before the observation period. The manufacturer does not have its own brick-and-mortar brand stores and has a high brand awareness among consumers. The manufacturer is considered to produce high-quality toys that come in themed series of sets as well as individual products that would together form the set. The assortment is diverse and consists of large items (e.g., larger playsets) as well as small items (e.g., smaller, modular pieces or figures). New products and themes are introduced frequently, and older sets are discontinued.

We observe the online direct channel long after the dust of the introduction has settled and uncover the equilibrium relationship between the online direct channel and retailers. The online direct channel offers a full assortment of all available products of the focal brand and a limited selection of manufacturer direct exclusives. As is common among manufacturer direct channels, the channel is priced considerably higher than the average retailer in an item-to-item comparison.

The sales revenue data per stock-keeping unit (SKU) of the online direct channel that were gathered by the manufacturer were supplemented with retailer sales revenue data per SKU from an anonymous market research company. We used this information to infer the assortment and price of the focal brand at each retailer, so our price measure includes price promotions. The data involve a sample of 41 retailers from two markets, i.e., 27 from the French market and 14 from the BeNe (Belgium–The Netherlands) market, and provide a fair representation of the industry. They cover a period of 104 weeks.[8] Our sample of retailers is stable over time, i.e., no confounding events, such as mergers or bankruptcies, happened. The retail network includes online and brick-and-mortar retailer channels as well as retailers with considerable differences in price positioning, assortment size, and innovativeness. All retailers are multi-brand retailers that offer the brand of the focal manufacturer next to other toy brands. None of them offered a private label line. There were no openings of direct channels by competitive manufacturers in our window of observation. We additionally acquired advertising data for the focal brand from The Nielsen Company (BeNe) and Kantar Media (France) across all media channels (i.e., radio, cinema, outdoor, internet, television, and press) and on a monthly basis.

The toy industry, the empirical setting for our study, is interesting for several reasons. First, industry reports have recognized the toy sector as one of the most prominent and fastest-growing industries when it comes to e-commerce success and multichannel buying behavior (GfK 2021). This feature indicates consumers' willingness to explore a variety of channels, which makes this sector particularly interesting in studying cross-channel relationships. Second, branding and licensing are a common industry practice for toys, an industry in which companies leave no opportunity unseized to intensively promote and advertise brands and products. This obviously creates prospects for manufacturers to exploit their brand name to steal share away from retailers but may also create extra demand from which a part may spill over to the retailers.

We summarize the operationalization of the variables in Table 2 (panel A: endogenous and exogenous variables in the VAR models; panel B: moderation variables in the regression model). As to the variables used in the VAR models, we operationalize sales measures (of the direct channel, the considered retailer, and the remaining competing retailers) as the aggregate sales value in euros of the focal brand at the respective channels in a particular week. We focus on sales in euros rather than sales in units, as prices per unit vary substantially (the assortment ranges from small low-priced items of a few euros to high-priced large items of a few hundred euros).

[6] See https://www.metafor-project.org/doku.php/tips:rma_vs_lm_lme_lmer?s%5b%5d=lme for background on the random effects meta-analysis model and a comparison to standard multilevel models.

[7] The sensitive nature of our topic prohibits us from revealing the identity of the focal manufacturer and observed retailers.

[8] For six retailers, we have fewer observations since the market research company started tracking the retailers at a later point in time.

Table 2
Variable Operationalization.

Variable	Operationalization
Panel A: VAR Model Variables	
Endogenous Variables	
$RetailSales_{rm,t}$	Aggregate euro value of focal brand's sales at retailer r in market m in week t.
$DirectPrice_{rm,t}$	Average price per item of the focal brand at the online direct channel in market m of retailer r in week t.
$DirectSales_{rm,t}$	Aggregate euro value of the focal brand's sales at the online direct channel in market m of retailer r in week t.
$RetailCompSales_{rm,t}$	Aggregate euro value of the focal brand's sales at the remaining competing retailers of retailer r in market m in week t.
$RetailPrice_{rm,t}$	Average price per item of the focal brand at retailer r in market m in week t.
$RetailCompPrice_{rm,t}$	Weighted average price of the focal brand at the other retailers in market m of retailer r in week t. We use the market share of each individual retailer in market m of retailer r in the entire observation period as weights.
$RetailAssort_{rm,t}$	Total number of available items of the focal brand at retailer r in market m in week t.
$DirectAssort_{rm,t}$	Total number of available items of the focal brand at the online direct channel in market m of retailer r in week t.
$RetailCompAssort_{rm,t}$	Weighted average number of available items of the focal brand at the other retailers in market m of retailer r in week t. We use the market share of each retailer r in market m in the entire observation period as weights.
$Advertising_{rm,t}$	Aggregate euro spending on advertising of the focal brand over all media in market m of retailer r in week t [a] (monthly data were transformed to weekly data by assuming an equal division per day and using the weekly sum of the per-day advertising expenses).
Exogenous Variables	
$TREND1_{m,t}$	Weekly time trend increasing by one for each week in the French market. The variable equals zero for retailers in the BeNe market.
$TREND2_{m,t}$	Weekly time trend increasing by one for each week in the BeNe market. The variable equals zero for retailers in the French market.
$HOLIDAY1_{m,t}$	Dummy variable that equals 1 for weeks that fall in the first holiday peak period (weeks 41 to 44), and 0 for all other weeks.[b]
$HOLIDAY2_{m,t}$	Dummy variable that equals 1 for weeks that fall in the second holiday peak period (weeks 45 to 48), and 0 for all other weeks.[b]
Panel B: Moderation Variables	
$PricePositioning_{rm}$	Average weekly price level of the focal brand at retailer r in market m during the observation period.
$AssortmentSize_{rm}$	Average weekly number of available items of the focal brand at retailer r in market m (in hundreds) during the observation period.
$Innovativeness_{rm}$	Average weekly number of new items of the focal brand at retailer r in market m during the observation period.
$Online_{rm}$	Dummy variable that equals 1 if retailer r in market m is an online retailer channel, 0 otherwise.
$NumberOfStores_{rm}$	Number of brick-and-mortar stores that belong to retailer r in market m (in hundreds). Note that $NumberOfStores_{rm} = 0$ if $Online_{rm} = 1$.

[a] As we have advertising data only at the focal brand level, this variable is the same for all retailers active in a market.
[b] We identified the holidays peaks based on a procedure where we regressed the sales of all retail chains on dummy variables per month (defined as 4-week periods). We retained the two months that showed a consistently significant positive effect on sales as holiday dummy variables.

The price variables (of the direct channel and the considered retailer) are operationalized as the per-week average price per item of the focal brand at the respective channel.[9] Assortment (of the direct channel and the considered retailer) was operationalized as the per-week total number of available items of the focal brand at the respective channel. For the competing retailers' price and assortment variables, we consider the weighted average price and assortment of the focal brand across the competing retailers in the market of each considered retailer, with the market share of each competitive retailer in the entire observation period as weights (see Zhang & Breugelmans (2012) for a similar practice). This weighting reflects that the price and assortment of more popular retailers likely carry a larger weight in the perception of the competing retailers' marketing mix.

To translate monthly advertising numbers to the weekly level, we assumed an equal division per day (and divided each month by its number of days) and used the weekly sum of the per-day advertising expenses as our weekly measure of advertising. Advertising data for the focal brand are not collected at the retailer level, because it is more common for a manufacturer rather than a retailer to advertise its brand. Hence, while we do observe the focal brand's spending on advertising per month and per market, we do not observe advertising differences between retailers in the same market. As a result, an observation for advertising for a particular retailer consists of the aggregate spending on advertising for the focal brand over all media in euros for that particular week in the market of the considered retailer.

In the final step of our study, we link the cumulative cross-channel price elasticities found through the per-retailer VAR estimations to different retailer characteristics that signal competitive strength to explore cross-retailer variation. The average *price positioning* is calculated as the average of the (per-week) average price per item of the focal brand across the observation period. The average *assortment size* and *innovativeness* are calculated as, respectively, the retailer's average number of

[9] In case of missing price data because of zero sales in a specific week, we use the average of the prices in the four weeks before and the prices in the four weeks after.

Table 3
Descriptive Statistics.

	Mean	Median	SD	Min	Max
Panel A: Endogenous Variables of the VAR Model[a]					
$RetailSales_{rm,t}$	88,479	23,026	209,745	0	3,054,534
$DirectPrice_{rm,t}$	7.97	2.78	7.36	2.19	19.69
$DirectSales_{rm,t}$	56,399	33,933	104,879	0	890,025
$RetailCompSales_{rm,t}$	1,804,425	1,275,945	2,339,350	21,047	11,704,584
$RetailPrice_{rm,t}$	22.56	22.86	6.22	4.36	44.56
$RetailCompPrice_{rm,t}$	21.10	20.94	1.27	17.75	24.64
$RetailAssort_{rm,t}$	278	285	168	4	795
$DirectAssort_{rm,t}$	6,845	9,540	4,791	329	14,942
$RetailCompAssort_{rm,t}$	417	404	61	261	626
$Advertising_{rm,t}$	178,410	66,848	303,760	0	1,482,636
Panel B: Moderation Variables[b]					
$PricePositioning_{rm}$	22.67	22.90	5.81	6.84	40.19
$AssortmentSize_{rm}$	272	255	165	9	588
$Innovativeness_{rm}$	4	4	3	0	10
$Online_{rm}$	39 %				
$NumberOfStores_{rm}$	125	53	194	0	900

[a] Statistics are for non-log-transformed variables. For direct channel variables (sales, price, assortment) and for advertising, variation is a result of differences across markets (N=2) and periods (T=104). For all other variables, variation is a result of differences across retailers (N=41) and periods (T=104).
[b] Statistics are for the non-mean centered moderation variables. For dummy variables, we report the percentage of observations with a value of 1. Variation is a result of differences across retailers (N=41).

(per-week) available items of the focal brand and the retailer's average number of (per-week) new items of the focal brand, across the observation period. An item is considered new in the assortment of a retailer in week *t* when it was not available at that retailer in the three months preceding week *t* but is available at the retailer in week *t*. *Online* is defined as a dummy variable that equals 1 for an online retailer channel and 0 for a brick-and-mortar retailer channel. The *number of stores* is defined as the number of brick-and-mortar stores that belong to the retailer (for online retailer channels, this is set to zero), ranging from 0 to 900 stores in our sample.

Table 3 shows that the average price position across retailers fluctuates around €22 and the assortment size is quite large with 272 SKUs on average, of which on average 4 are new. The average offline retailer sells through 125 brick-and-mortar stores, and online retailers form the minority (39 %). All variables display considerable variation.

6. Results

6.1. Hierarchical panel VAR model

The hierarchical panel VAR model across 41 retailers allows assessment of the average (cannibalistic vs. synergetic) relationship between the online direct channel and the retailers in the retail network (to test H_{1a} versus H_{1b}). On the basis of the

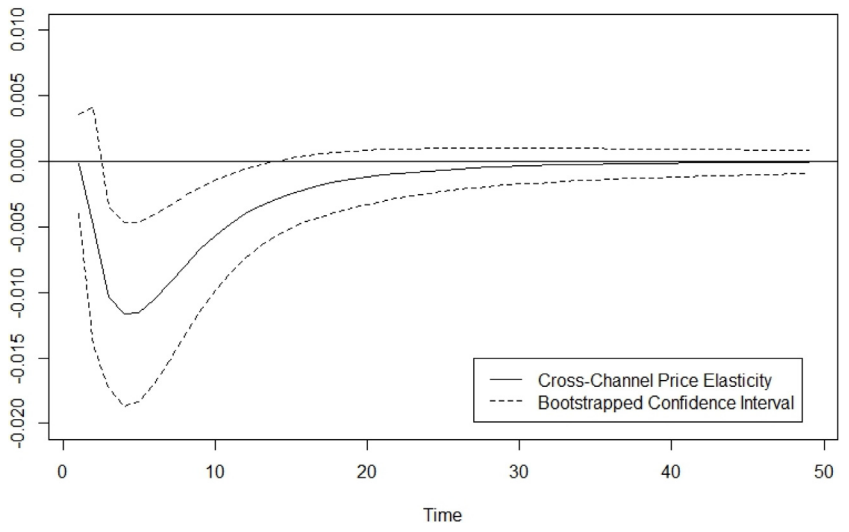


Fig. 2. GIRF, based on Panel VAR Model.

Table 4
Effects of Retailer Competitive Strength Characteristics on Cumulative Cross-Channel Price Elasticity.

	Moderating Effects	
	B	SE
Intercept	-0.085**	0.030
Price positioning	-0.001	0.001
Assortment size	0.000	0.000
Innovativeness	-0.065**	0.015
Online	-0.005	0.050
Number of stores	0.000	0.000
R^2	0.694	

Notes: Continuous moderating variables are mean-centered. † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$.

estimates of the VAR model, a GIRF was calculated to assess the cross-channel price elasticity to measure the impact of a (one standard-deviation) change in the online direct channel price on retailer sales over time (see Fig. 2). The contemporaneous effect of a price shock is nonsignificant, yet it turns significantly negative and remains so until 12 weeks after the shock. Summing estimates until the end of the dust-settling period, the cross-channel price elasticity is negative and significant (-0.090, $p < 0.0001$) across all retailers. Hence, on average, we find that the synergetic effect dominates (in line with H_{1b}).

6.2. Per-Retailer VAR models

The per-retailer cumulative cross-channel price elasticities are calculated based on the GIRF estimates of the per-retailer VAR models. Across all retailers, the negative and significant intercept (-0.085, $p = 0.002$) of the meta-regression without moderators confirms the findings of the hierarchical panel VAR model and thus supports the synergetic effect hypothesized in H_{1b}. More interestingly, the per-retailer cross-channel price elasticities range from - 0.79 to 1.35, which shows that there is substantial cross-retailer variation. Our range of cross-channel price elasticities falls within the range of cross-brand price elasticities reported in the meta-analysis of Auer and Papies, (2020). Table 4 shows the results of the multilevel random-effects meta-regression (Equation (2) where we link the per-retailer cross-channel price elasticities to retailer competitive strength characteristics (to test H_2–H_6).

The effect of the average retailer price positioning on the estimated cross-channel price elasticity is not significant (β = -0.001, $p > 0.10$), and we thus do not find support for H_2. H_3 is also not supported, as the effect of assortment size on the cross-channel price elasticity is not significant ($\beta = 0.000$, $p > 0.10$). Innovativeness, in contrast, serves as an important advantage in the competition with the direct channel (β = - 0.065, $p < 0.01$). Indeed, carrying more new items in the assortment of the focal brand seems to protect the retailer, supporting H_4. In terms of transaction utility, we find no support for the moderating effect of the online versus brick-and-mortar retailer channel (β = - 0.005, $p > 0.10$) nor for the number of brick-and-mortar stores ($\beta = 0.000$, $p > 0.10$). Hence, we do not find support for H_5 or H_6.

6.3. Robustness checks

The results we obtained are consequences of choices made during the research process. Here, we assess the robustness of our results to some of these choices. Full results are reported in Web Appendix B. First, we estimated our VAR models in logarithms, which could impact the size of the elasticities obtained (Christen et al. 1997). To assess whether this impacts our findings, we also estimated linear (non-log transformed) VAR models and computed elasticities from those models. Our findings remain robust. Second, we base our analyses on two years of data and assume that the cross-channel price elasticities remain stable across this observation period. To check fluctuations over time, we redid our analyses separately for year 1 and year 2. The results are robust, although the negative effects for year 1 (-0.065, $p = 0.000$) are weaker than for year 2 (-0.157, $p = 0.000$). Finally, effects may differ for online and brick-and-mortar retailer channels given their different business model. So, instead of controlling for this with a dummy variable in the moderation analysis, we also performed separate (hierarchical panel and per-retailer) VAR models and moderation analyses for online and brick-and-mortar retailer channels. Again, the results remain qualitatively unchanged.

6.4. Ex-post analyses on large versus small items

While the studied retailer characteristics were shown to be strong indicators of competitive strength in earlier retailing literature (Ailawadi et al. 2008; Vroegrijk et al. 2013), we could only confirm the moderating role of innovativeness in our study. Discussions with manufacturers and retailers active in the market pointed to the distinction between large versus

Table 5
Effects of Retailer Competitive Strength Characteristics on Cumulative Cross-Channel Price Elasticity for Large and Small Items.

	Moderating Effects	
	B	SE
Intercept	-0.079**	0.024
Price positioning large	0.003**	0.001
Price positioning small	0.001	0.012
Assortment size large	-0.000	0.001
Assortment size small	-0.000	0.000
Innovativeness large	-0.238*	0.111
Innovativeness small	0.011	0.029
Online	-0.060	0.058
Number of stores	0.000	0.000
R^2	0.880	

Notes: Continuous moderating variables are mean-centered. † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$.

small items as an important factor to consider in determining the overall degree of differentiation between retailers and the online direct channel.

This distinction also conceptually makes sense, as consumers' information-search behavior is markedly higher for larger – and therefore typically more expensive – items in a brand's assortment (Clarke and Belk, 1979). These are the items for which consumers are willing to spend time and effort in comparing different stores. Smaller, less expensive items, in contrast, usually involve lower consideration and shorter decision-making, reducing the need to consult multiple stores. Consumers' consideration of the acquisition and transaction utility components on which a store's competitive strength relies may thus be different for large versus small items.

In an ex-post analysis, we split our moderators along this dimension. That is, items with a price above or equal to €60 are categorized as large, and those below €60 as small. This cut-off was selected based on the threshold that several retailer toy webshops use, as well as the free shipping limit applied in the online direct channel. Our findings are robust to other values (i.e., €50 and €70). About 11 % of the products are classified as large, and retailers vary in how many of these items they hold in their assortment (ranging from 13 % in the assortment to some retailers not having these large items at all).

Table 5 shows the results of the model where we make a distinction between large and small items. These results show that especially marketing mix instruments for the large items have a significant moderating role. Specifically, innovativeness is only important for large items ($\beta = -0.238$, $p < 0.05$), as the effect for small items is not significant ($\beta = 0.011$, $p > 0.10$). Thus, offering new items protects the retailer from direct channel cannibalization and leverages the synergetic effects only when the innovation is linked to the large items of the manufacturer's product line. Second, while the overall effect of price positioning is not significant, the effect is significant and positive for large items ($\beta = 0.003$, $p < 0.01$), but not for small items ($\beta = 0.001$, $p > 0.10$). Hence, retailers that have a higher price positioning for large items are less protected against cannibalization and less able to leverage the synergetic effects. H_2 and H_4 are thus both supported for large items in particular.

We illustrate the GIRFs for two retailers that vary in competitive strength in Fig. 3. The GIRFs represent the impact on retailer sales of a shock of one standard deviation in the direct channel price. Panel A displays the GIRF of a retailer whose competitive strength is below average (i.e., the retailer has a higher price positioning and a lower innovativeness for its large items). This retailer displays a significant, positive cumulative cross-channel price elasticity and is therefore subject to cannibalization by the direct channel. In contrast, Panel B displays the GIRF of a retailer whose competitive strength is above average (i.e., the retailer has a lower price positioning and a higher innovativeness for its large items). This retailer experiences a negative cumulative cross-channel price elasticity and thus benefits from the synergetic effects that the

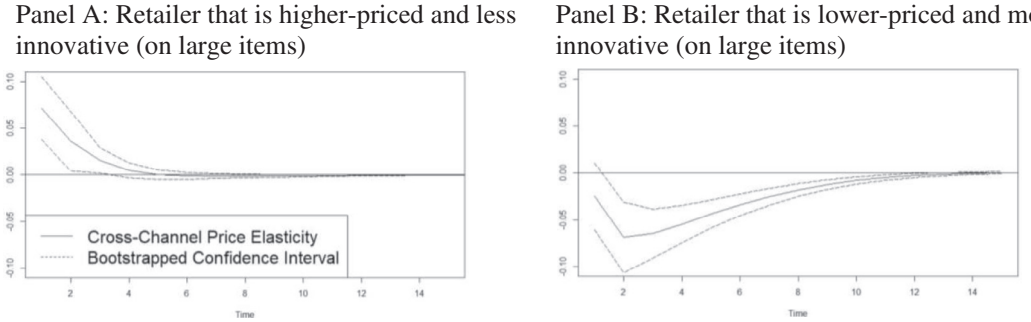


Fig. 3. Impact of Online Direct Channel Competition for Retailers with Different Competitive Strength.

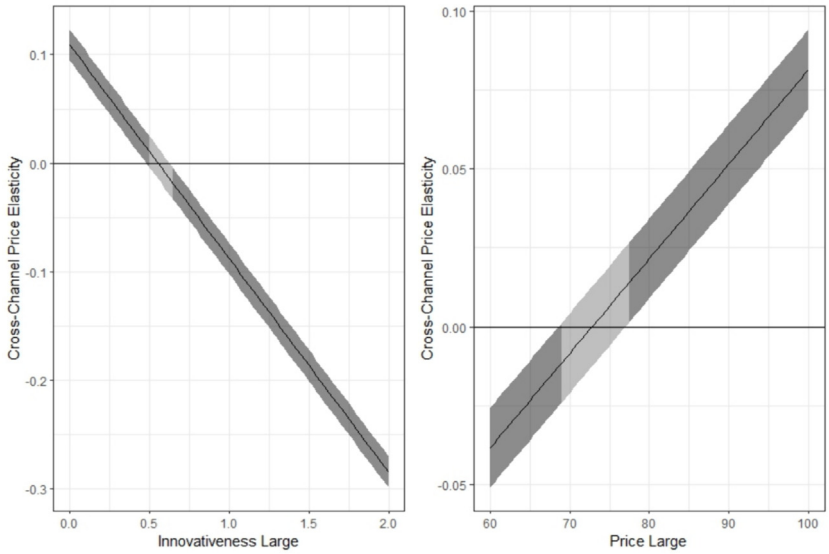


Fig. 4. Cross-Channel Price Elasticities along Innovativeness and Price (of Large Items). Note: We show 95% confidence intervals based on the estimated standard errors in Table 5. Dark-shaded areas indicate significant cannibalistic or synergetic effects, i.e., respectively when the cross-channel price elasticity is significantly positive or negative.

Table 6
Cross-Channel Price Elasticities for Different Scenarios.

		Innovativeness (for Large Items)					
		Low		**Medium**		**High**	
Price Positioning (for Large Items)	**Low**	-0.068	[-0.27; 0.13]	-0.225	[-0.27; -0.18]	-0.384	[-0.62; -0.15]
	Medium	0.078	[-0.12; 0.28]	-0.079	[-0.12; -0.03]	-0.237	[-0.47; -0.00]
	High	0.225	[0.03; 0.42]	0.068	[0.02; 0.11]	-0.091	[-0.39; 0.15]

Notes: 95% confidence intervals between brackets.

direct channel triggers. These examples illustrate the heterogeneity among retailers, whose competitive strength is proven to be a determining factor of the degree of direct channel competition.

To obtain insights into the importance of retailer competitive strength characteristics on the cumulative cross-channel price elasticities, we calculate the ranges of the value of the significant variables (large-item innovativeness and price positioning) at which the cross-channel price elasticity is significantly positive (cannibalization) or significantly negative (synergy) (see Fig. 4).

Retailers who price their large items at, on average, less than €68.5 and/or have a value of 0.65 new large items per week (that is, those that introduce more than ten new large items per quarter, given there are 16 weeks in a quarter) benefit from the synergetic effects. In contrast, those who price above €77.50 and/or have a value of 0.48 new large items per week (that is, those that introduce fewer than eight new large items per quarter) experience cannibalization. We find no significant effects for retailers with price levels between €68.50 and €77.50 for large items and for retailers with 8–10 new large items per quarter.

Next to evaluating the impact of retailer competitive strength characteristics in isolation, we combine the large-item price positioning and innovativeness in scenarios, with low values (mean – two standard deviations), medium values (mean), and high values (mean + two standard deviations). Table 6 shows the results of the simulations for these 9 scenarios (3×3).

The results indicate that retailers enjoy synergetic effects for medium and high levels of large-item innovativeness, provided their large-item price positioning is not too high. The strongest effects occur for low-priced, highly innovative retailers (-0.384). Cannibalistic effects occur for high-priced retailers that have low or medium levels of innovativeness, with the former experiencing the strongest cannibalistic effects (0.225). Overall, these results illustrate that different levels of our moderators provide meaningful insights regarding when synergy or cannibalization emerges.

7. Discussion

Despite the well-spread occurrence of online direct channels (Ailawadi 2021) and the ongoing controversy that so often surrounds the phenomenon because of the tension between manufacturer and retailers, few empirical insights exist on the nature of the relationship between the online direct channel and the retailer. While game-theoretic and survey research made a first foray into the subject of manufacturer encroachment, research using secondary data is absent, likely because of key players' unwillingness to release sales data on this sensitive phenomenon. By using unique sales data from a real-life case where a top toy manufacturer has been competing with its retail network for several years using an online direct channel, our study offers a first look at the cannibalistic versus synergetic effects created by an online direct channel. Additionally, we provide insights into the moderating role of retailer competitive strength and investigate whether store choice drivers that impact acquisition (price positioning, assortment size, innovativeness) and transaction utility (online (vs. brick-and-mortar), number of stores) have a moderating effect.

7.1. Summary of the findings

Using (panel) VAR modeling, we estimate the elasticity of the online direct channel's price on retailer sales of the focal brand. A first interesting observation is the across-the-board stationarity of retailer sales, which shows that there is no long-term, persistent effect of an online direct channel price change on retailer performance of the focal brand. In the mature market under study, long after the online direct channel's launch, it is not surprising that temporary shocks in the direct channel do not persist in retailer sales. Such absence of long-run impact of price shocks has been shown in prior research (e.g., Nijs et al. 2001). As a result, retailers that compete with online direct channels do not need to worry about long-run implications of manufacturer direct success, at least not in a mature market where the latter has already gained its stance.

What is more, averaged across all retailers, the short-term price elasticity of the online direct channel turns out to be negative and significant. For the average retailer, we thus find proof of short-term synergetic effects of the online direct channel. Once the market has matured, an online direct channel can, for the average retailer, lead to market expansion. Hence, it is key to leverage the potential that new customers bring and to benefit from brand awareness and positive brand associations that the direct channel builds (Avery et al. 2012; Van Crombrugge et al. 2024).

While the synergy effect dominates in our research context, our (ex-post) analyses show a large amount of variation across retailers and suggest that, for our setting, especially the management of large items (i.e., large playsets) is a key differentiator between retailers. This makes sense, as these are the items for which consumers are willing to spend time and effort in comparing the offer across the different providers (Clarke & Belk 1979). Excelling in both price and in offering new items for these large items seems to be key to nurture synergetic effects. Indeed, consumers who are incentivized by a price change at the online direct channel may be more likely to end up buying at a retailer that offers a good deal (low price, innovative assortment) for large items.

Interestingly and to our surprise, none of the transaction utility components are found to have the hypothesized impact. While we expected that online retailer channels or retailers with a larger number of brick-and-mortar stores would be able to counter the online advantage of the direct channel (Bucklin et al. 2008; Homburg et al. 2014), we find no support for the strategic advantage of an online presence nor store omnipresence. This result may be attributed to the fact that nowadays, rather than brands or retailers, consumers are in charge of the transaction (The Economist 2005). A consumer expects to shop whenever and wherever they want. Boundaries between channels disappear, and omnipresence is not a differentiator but rather something to be expected.

7.2. Managerial implications

Our research contributes to the channel competition literature by adding a missing cross-channel elasticity in multichannel research: how an online direct channel impacts the sales of indirect multi-brand retailers (Ailawadi 2021; Gielens & Steenkamp 2019). Finding for this steady-state market, on average, a synergetic relationship between the online direct channel and the retail network, we contribute to a long-standing debate between manufacturers and retailers. Once the dust after a direct channel introduction is settled, marketing activities in the online direct channel (for instance, via making the online direct channel price more attractive) are not necessarily bad for retailer channels. In fact, we show via which ways retailers can nurture the market expansion possibilities that an online direct channel offers.

Our analysis reveals that price level and innovativeness, especially for large items, are characteristics of competitive strength that retailers can use to leverage the positive impact of the online direct channel; a lower price and a newer assortment for large items counter the appeal of the typically high-priced and up-to-date assortment of the direct channel (Rodríguez & Aydin 2015). Retailers faced with direct competition may therefore do well to not retaliate via an increase in the price level of the large items of the focal brand (e.g., in an attempt to close the price gap with the higher-priced online direct channel, or to recoup lost revenue), or through a decreased focus on new items of the focal brand. Doing so might erode the standing and expertise that a low-priced, innovative assortment portrays and may enhance the cannibalizing effects of the direct channel. These findings are in line with the long list of literature advising retailers on the importance

of price and assortment strength as a strategic measure in competitive situations (e.g., Draganska & Klapper 2007; Gijsbrechts et al. 2008; Van der Maelen et al. 2017).

The finding that larger – typically more expensive – items in a brand's assortment are the subject of retail stores' competitive strength to counter and benefit from direct channel competition is not necessarily limited to the toys category of our empirical context. Other categories that served as examples of direct channel conflict in academic and business press, such as domestic appliances, furniture, or do-it-yourself (DIY) tools (Kumar & Ruan 2006; Tsay & Agrawal 2004), have similar product ranges that differ in size and consequently price. In domestic appliances, for instance, consumers have stronger information-search behavior and will spend more time and effort for larger products such as refrigerators and freezers than for smaller domestic appliances like toasters and toothbrushes (Homburg, Lauer, & Vomberg 2019). Similarly, couches or mattresses and lawn mowers or jacuzzies will matter more to consumers in trading off whether to buy in the brand's online direct channel or at the traditional multi-brand furniture or DIY store than smaller items like cupboards or screwdrivers. We do advise managerial caution, as different industries may present boundary conditions to our insights, an issue we discuss next.

8. Boundary conditions

The results presented are based on one case that considers the impact of a particular online direct webshop for a particular brand in a particular category. In this section, we reflect on the generalizability of our results to other cases and discuss some of the conditions that make a synergetic versus cannibalistic relationship between the online direct channel and retail network more or less likely. These conditions are based on prior digital disintermediation literature (e.g., Gielens & Steenkamp 2019; Maier & Wieringa 2021; Sa Vinhas & Anderson 2005).

The first dimension that may determine whether synergy or cannibalization will emerge is category expandability (Liu & Yang 2009), which refers to the possibility of easily expanding purchases in the category beyond the chosen channel and/or timing. Maier and Wieringa (2021) suggest that the number of items one can purchase or the available budget impacts the cannibalization between an online marketplace and the incumbent webshop of the retailer. Building on these insights, we speculate that synergy is more likely to happen in highly expandable categories where a purchase in one channel can easily trigger purchases in another channel (at the same time). This may happen for categories that have low prices, where one purchase does not deplete the available budget, or for categories where purchases of multiple products are possible (think of a collection of books by the same author vs. the purchase of an expensive electronic device). The second dimension suggested by prior literature is focal brand equity (Gielens & Steenkamp 2019). The most successful direct channel initiatives today are webshops of the world's most valuable brands, which have the top-of-mind awareness to drive traffic to their website as well as the scale and financial resources to nurture these traffic-building capabilities. We speculate that the large and loyal customer bases of such high-equity brands increase the likelihood of cannibalization over the chances of synergy.

We combine these conditions in a 2×2 matrix and speculate in which of the cells cannibalization or synergy from the direct channel is more likely to dominate (see Table 7). That is, we expect cannibalization to dominate for high-equity brands that are active in categories with low expandability, such as for direct channels of consumer electronic brands Apple or Dyson, where these high-equity brands have the potential to draw considerable traffic away from retailers to their own channels and where consumers do not tend to buy multiple products at the same time because it is impossible (budget) and/or unreasonable (stock) to do so. Synergy is more likely to dominate for low-equity brands that are active in categories with high expandability. Examples would include smaller fast-moving consumer goods (e.g., candy, cookie) brands that do not have the power to pull many consumers to their direct channel, and if they do so, this does not necessarily hamper purchases in the retail channel. Synergy and cannibalization are equally strong (hence $\approx$) for the other two cells, where the cannibalization concern of high-equity brands trades off with the low expandability of the category or vice versa.

Aside from the above two (brand and category) dimensions, our research shows that retailer competitive strength (notably, its price positioning and innovativeness for large items) can also tilt the relationship to cannibalization or synergy. In a similar spirit, prior research has suggested that the strategy of the manufacturer's webshop matters. Gielens and Steenkamp (2019) suggest that differentiation across channels is important to increase the appeal of a brand webshop. This is in line with B2B research showing that differentiation in the product offering across B2B channels effectively prevents channels from destructively competing against each other (Sa Vinhas & Anderson 2005). We speculate that high differentiation between the online direct channel and retailers lowers cannibalization and strengthens synergy effects between these channels. Direct channels with a unique assortment, for example, by featuring online exclusives or unique services such as customization and personalization, have a more differentiated position in the channel portfolio.

Table 7
Conditions That Determine the Relation between a Direct Channel and Retailers.

		Category Expandability	
		High (willing & able to buy more)	**Low (unwilling & unable to buy more)**
Brand Equity	**High (top-of-mind awareness)**	Synergy ≈ Cannibalization	Cannibalization > Synergy
	Low (low awareness)	Synergy > Cannibalization	Cannibalization ≈ Synergy

The case we study falls in the upper-left cell of Table 7; we study a high-equity brand that is active in a category with high expandability where consumers buy themed toys and thus are able and willing to buy other toys within a theme, potentially also in other channels. That we find a dominating synergetic relationship is a function of the webshop strategy chosen by the manufacturer that offers online exclusives and a large assortment of small parts often not in the retail channel's assortment. Our research also clearly shows the differentiation potential of retailer competitive strength characteristics, especially on large items.

In sum, the above discussion speculates that the cannibalistic versus synergetic nature of the relationship is likely a function of (i) the category and (ii) the brand's equity, two dimensions that are not easy to (directly) change. Both (iii) the retailer and (iv) the manufacturer have tools in the form of marketing mix instruments that allow them to soften the degree of vertical cannibalization and nurture synergetic opportunities.

9. Limitations and directions for future research

We provide novel insights into the relationship between an online direct channel and the retail network. However, our analysis is subject to limitations that provide fruitful avenues for future research. First, because of data restrictions, we only tested the impact of one online direct channel on retailer performance in a specific sector, i.e., toys, though we exploited and empirically investigated the variation across retailers. We call for more research to empirically confirm the expectations formulated in the previous section regarding the impact of the category, brand equity, and webshop differentiation. More research is also needed to determine the appropriate cut-off of what constitute large versus small items in the assortment for other cases and sectors.

Second, our set of endogenous variables in the VAR models includes key metrics like sales, price, assortment, and brand advertising, but we do not observe more granular metrics (e.g., wholesale prices, profit, retail advertising, retail support, or sales incentives), nor do we model individual consumer (e.g., purchase frequency, basket size, distance to stores) or store-specific metrics (e.g., store location, store size in m^2). Because we have only retailer sales data of the brand of the focal manufacturer, we are also not able to investigate competing manufacturers. Furthermore, our advertising measure was acquired on a monthly level, which may lead to aggregation bias that higher-frequency data could avoid.

Third, our empirical setting is a mature market in which the online direct channel is well-established and -adopted, which may explain our observation that the online direct channel only impacts retailer performance in the short run or the observation of synergetic effects. Future research should look into the disruptive impact of a direct channel introduction and study how this affects retailer marketing mix and performance in the long run.

Fourth, the focal manufacturer channel under investigation is an internet channel with many of the discussed features inherent to its online nature. A growing number of brands are selling through brick-and-mortar brand stores as well (Van Crombrugge et al. 2024). Future research could investigate whether the effects in this study translate to offline direct channel competition.

Finally, while this research points to the ambiguity that the direct channel brings to the relationship between retailer and manufacturer, where partners are now competitors as well, we focus only on the demand-side impact and abstracted from any relational harm that the direct channel may cause. Such an angle would be a worthwhile addition to this research.

In summary, we show that an established online direct channel may be beneficial for retailers and that its effect depends on the retailer's competitive strength. With this study, we not only fill a gap in the retail competition literature but also contribute to the discussion between manufacturers and retailers on the actual impact of an online direct channel on retailer sales.

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CRediT authorship contribution statement

Michiel Van Crombrugge: Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Methodology, Investigation, Data curation, Conceptualization. **Niels Holtrop:** Writing – review & editing, Software, Methodology, Formal analysis, Conceptualization. **Kathleen Cleeren:** Writing – review & editing, Writing – original draft, Supervision, Methodology, Investigation, Funding acquisition, Conceptualization. **Els Breugelmans:** Writing – review & editing, Writing – original draft, Supervision, Resources, Project administration, Methodology, Funding acquisition, Conceptualization.

Data availability

The data that has been used is confidential.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijresmar.2024.08.001.

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