Journal of Retailing xxx (xxxx) xxx

Contents lists available at ScienceDirect

Journal of Retailing

journal homepage: www.elsevier.com/locate/jretai

First Insights

Explaining physical retail store closures in digital times

Ann-Kristin Kupfer[a], André Marchand[b,*], Thorsten Hennig-Thurau[c]

[a] Institute of Information Systems and Marketing, Karlsruhe Institute of Technology (KIT), 76131, Karlsruhe, Germany
[b] Chair of Management Science/ Marketing, Leipzig University, 04109, Leipzig, Germany
[c] Marketing Center Münster, University of Münster, 48143, Münster, Germany

ARTICLE INFO

Article history:
Available online xxx

Keywords:
Store closure
Physical retail
Brick-and-mortar stores
Store attributes

ABSTRACT

The widespread closures of physical retail stores in the digital age significantly impact business outcomes, urban communities, and regional economies. Understanding this phenomenon is crucial for retailers, policymakers, and society at large. Drawing from literature on retail success factors, we derive a comprehensive set of factors that may help explain why some retail stores close while others survive. We test the relationships of these factors with store closures using a unique dataset that combines responses from a large-scale consumer survey with observational data on actual store closures in the apparel and media categories between 2015 and 2020. Rare-case regression analyses reveal that factors related to the store's product selection (e.g., assortment uniqueness), store environment (e.g., an accessible location), the offered experience (e.g., store atmosphere), and frictionless transactions (e.g., via convenient store hours) are significantly associated with store closures in our data. In contrast, several other established store success factors (e.g., service) show no such significant association. Additional empirical analyses highlight differences between stores that offer apparel versus media products, are smaller versus larger, and located inside versus outside city centers to provide context and specificity to the findings.

The prevalence of digital shopping possibilities continues to affect the very concept of 'Main Street' as an assembly of brick-and-mortar stores in the heart of a city, town, or neighborhood in many economies. In the past decade, physical retail stores have been closing at an unprecedented rate. For example, the estimated store closure rate is currently 4.3 % in Germany (Destatis, 2022) and predicted to reach 5 % for the United States in the next years (Brooks, 2023). Such a development can turn shopping areas and malls into ghost towns and wastelands (Meisenzahl, 2021; Thompson, 2018). Future predictions are equally grim for physical retailing: reports estimate the closure of approximately 80,000 U.S.-based retail stores and one-quarter of all U.S. malls by 2026 (Hartmans, 2021). Digital competition is widely considered a major source of this development, as online shopping has enjoyed major sales increases during the decline of physical retailing (Centre for Retail Research 2020; U.S. Census Bureau 2021; see Web Appendix A for a visual display).

Beyond its implications for individual store owners, this strong shift poses a socioeconomic concern, with wide-ranging implications for policy makers and society at large. Physical retail stores provide important cornerstones for the attractiveness of cities (Reinartz, Wiegand & Imschloss, 2019; Wichmann, Scholdra & Reinartz, 2021). The high vacancy rates affect

* Corresponding author.
E-mail address: mail@andre-marchand.de (A. Marchand).

https://doi.org/10.1016/j.jretai.2024.07.001

Please cite this article as: A.-K. Kupfer, A. Marchand and T. Hennig-Thurau, Explaining physical retail store closures in digital times, Journal of Retailing, https://doi.org/10.1016/j.jretai.2024.07.001

other businesses, such as restaurants, which must deal with fewer pedestrians (Jones, 2017). Thus, these store closures affect not only business outcomes of retail stores but also urban appeal and regional economies (Thompson, 2018; Wood & Allen, 2016).

To be able to compete in today's retail environments, in which omnichannel offers attract consumers by promising enhanced experiences, physical stores need to reimagine themselves to keep up with their digital counterparts and avoid store closures, as the permanent termination of business operations of a given retail store at a given location (Bei, Gielens & Dekimpe, 2018). Key questions are what kind of value a physical retail store can still offer to shoppers, and which store attributes are important (or not) in this digital era. Practitioners offer broad, often divergent answers (e.g., unique assortments, large assortments, small stores, automation, personal advice; Aufreiter et al., 2012; Fertik, 2019; Tordjman, Evans & Bedraoui, 2021), making it difficult for many physical retailers to identify the right way forward. Moreover, studies offer theoretical propositions for managing physical retail stores in digital times (e.g., Breugelmans et al., 2023; Grewal, Breugelmans, Gauri & Gielens, 2023; Hagtvedt & Chandukala, 2023) but provide few empirical results yet. To offer insights into the future of physical retail, we add to this ongoing discussion by making use of past data on stores that closed (and those that persisted) when omnichannel retailing gained ascendency.

Specifically, we aim to determine empirically what sets retail stores that closed in the face of digital competition apart from those that continued to exist. Which factors distinguish these two groups? What does (no longer) work? With answers to these questions, physical retailers can better focus their scarce resources on the factors that might be critical for successfully managing the necessary transformations.

Although rich empirical literature has analyzed success factors related to consumers' retail store patronage or attitudes (e.g., Baker, Grewal & Parasuraman, 1994; Pan & Zinkhan, 2006), few studies have addressed the drivers of store closure. It is crucial to close this gap as the insights from these studies might not be readily applicable to the context of store closures. While store attributes valued by consumers, such as good service and low prices, might lead to improved store attitudes and store patronage, the same features can be detrimental in terms of store closure when they affect other facets of store success such as operating costs, indicating that retailers might be overinvesting in certain resources. In essence, what consumers value might not always coincide with what enables the store to survive economically in the long run, particularly when a different cost structure applies to retailers' digital competition.

The scarce body of studies on store closures points at some individual factors that relate to store closures (e.g., store size, population size; Carree & Thurik, 1996), but an integrative analysis with a comprehensive set of factors capturing a large set of critical store attributes is notably absent. Many factors that are often particularly valued by customers, such as an inviting store atmosphere or the offered service in stores, have not yet been analyzed in the context of store closures and require a thorough analysis. In addition, those few factors that have been addressed in the context of store closures were investigated many years ago, necessitating a re-evaluation in the age of digital transformation.

This research addresses this gap by bringing together a large, comprehensive set of factors that are likely of critical importance for the survival of a physical store in the digital age. By offering first empirical insights into which factors are significantly associated with store closures in digital times, we aim to help retail stores withstand the pressures related to the current decline in physical retailing. We thereby hope to encourage positive outcomes for the stores and their employees, as well as for other societal stakeholders, such as those who benefit from attractive and thriving 'Main Streets.' Reflecting this focus on the preservation of such physical shopping opportunities, we adopt the perspective of an individual physical retail store—rather than the company, retail chain, conglomerate, or retail system, for which closing a physical outlet and shifting sales online might be advantageous.

The goal of this study is to explain which of the existing physical retail stores have a higher—or lower—likelihood of store closure and to derive recommendations for existing retailers struggling to stay in business. In this effort, we draw on factors found by prior research to increase store patronage (or at least patronage intentions) and test these factors' role in explaining store closure. Whereas they have been found to positively affect consumers' store attitudes, non-significant or even adverse effects are possible when considering the nature of store closure, as costs might outweigh gains. We structure these factors along different strategic levers that Grewal et al. (2023) proposed to be of key importance for (re-imagined) physical stores in the digital age. As many of these factors are difficult to measure objectively, we apply a data collection approach that enables us to analyze a broad, comprehensive set of factors. Specifically, we first combine the ratings of a large set of physical retail stores in Germany, collected via a nationwide representative, large-scale consumer survey in 2015, with archival data capturing district-specific archival data to measure a comprehensive register of factors. We then combine this data with observational data capturing whether these stores were (or were not) closed as of 2020, our dependent variable. The dataset thereby focuses on apparel and media stores, as they were among the first to encounter digital competitors. We then apply a rare-case logistic regression technique of penalized least squares (Firth, 1993) to the resulting data set that encompasses information on 2,548 unique physical retail stores to explain why certain stores closed while others did not.

The results reveal that several (but not all) factors are indeed significantly linked to observed store closures, revealing positive, negative, and non-significant effects. Related to product selection, we find that stores with a curated set of unique, niche merchandise or a focused assortment are associated with a higher likelihood of store closure. This is interesting to note, given that unique products have been suggested as safeguards against digital competition (see, e.g., Aufreiter et al., 2012). Regarding the store environment, having an accessible location and a large store size is associated with a decrease in store closure likelihood, whereas locations within a city center and with smaller populations have a higher likelihood

of closure. Several location-related factors continue hence to be of key importance in our digital time. Our findings further provide evidence that the experience offered in-store is also important for survival, as physical stores with an inviting atmosphere generally have lower closure rates. Last, some factors that likely support frictionless transactions also help explain store closure probabilities. Specifically, we find that stores that offer convenient store hours and belong to a retail chain have a lower closure probability. Interestingly, we find no significant associations for factors capturing social and responsible elements of a retail store, such as its service and corporate social responsibility (CSR) activities. Investments in these factors apparently were not able to decrease the closure likelihood for the retailers in our data.

These empirical findings offer first insights to retail managers, but also stakeholders fighting the decline of physical retailing in the digital age. The observed significant associations suggest that store managers should strengthen the features unique to physical retailing by offering an inviting atmosphere, while still maintaining the ease and accessibility of online shopping. For policy makers, we provide information on the closure probabilities of specific store types, which may help them devise economically sustainable store concepts, such as ensuring that consumers' access to physical stores is as easy as possible.

We contextualize these results through separate analyses for stores that sell apparel versus media products. In addition, we show that differences also exist with regard to closure between smaller versus larger stores and between those which are located within versus outside a city center. This can help retailers and interest groups apply the results to their specific needs (e.g., by offering tailored analyses for small store owners for which recommendations differ from those for large retailers).

1. Determinants of store closure

1.1. General success factors of physical retail stores

Retailing research has proposed various constructs to influence the customer-related success of physical retail stores, pertaining, among other things, to a store's merchandise (e.g., assortment size), store environment (e.g., convenient location), and experience (e.g., store atmosphere). Meta-analyses of such retail store success factors have shed light on the relative importance of several of these various attributes for customer metrics, such as store satisfaction, store patronage intentions, and repurchase intentions. Pan and Zinkhan (2006) integrate findings from 45 empirical studies about 10 physical store attributes that drive retail store patronage; they conclude that assortment size, assortment quality, assortment price, customer service, store atmosphere, convenient location, and store hours are key determinants of a consumer's choice to patronize a particular store. Blut, Teller and Floh (2018), in another meta-analysis, include additional studies and a broader set of retail success measures (satisfaction and word of mouth, in addition to store patronage and store patronage intentions). They find that assortment (quality, size, and/or brands) is a strong success driver, followed by price, atmosphere, and service. However, they emphasize that the influence of these drivers strongly depends on the respective success measure and varies across pre-digital and digital eras.

These important insights shed light on the relative impact of various success factors on customer metrics, but their influence on bottom-line success measures at the store level remains unclear. The need to include retailer constraints and especially costs (Mantrala et al., 2009) likely affects the attributes' respective role in store closure. For example, a large assortment tends to incur heavy storage costs, low prices produce small profit margins, and appealing store designs can be expensive to design and implement. Thus, the attributes that enhance consumer metrics might fail to decrease store closure rates, so research that probes this relationship is required.

1.2. Physical retail store closures

Findings on the drivers of store closure are limited, and retailing scholars have called for further research on the matter (Bei et al., 2018; Haans & Gijsbrechts, 2010). The few existing studies on closure drivers focus on objectively measured store factors. For example, analyzing several thousand retail stores in Illinois in 1974, well before the emergence of digital retail channels, Star and Massel (1981) find lower closure rates among stores affiliated with a corporation and with a larger business but higher rates for stores located in urban areas. They also note that closure depends on the type of products offered. Carree and Thurik (1996) analyze local market exits by 23 Dutch shop types that operated before the arrival of online retailing (1981–1988) and note an association of small stores with higher exit rates; market growth in the sector and unemployment growth also helped explain store exits.

Using hierarchical spatial modeling methods, Warren and Gordon-Larsen (2018) assess supermarkets and convenience stores in four U.S. cities; their findings confirm the importance of a store's retail environment, such that stores in high-poverty, non-white areas appear more likely to close. Related research also suggests additional location and competition effects, including a store's spatial distance from its competitors (Haans & Gijsbrechts, 2010; Mayadunne, Johar & Saydam, 2018; Shields & Kures, 2007).

These studies offer important insights into several variables that help explain store closure. However, many key factors which are likely critical to a store's performance have not yet been analyzed in the context of store closure, requiring a new comprehensive assessment of the factors explaining the probability of retail store closures.

2. Conceptual framework

With an empirics-first approach, we develop our framework using "phenomenon-to-construct mapping" (Van Heerde et al. 2021, p.5). That is, we begin by observing store closures as part of the real-world phenomenon of a current decline in physical retailing, then turn to current retailing literature to derive a contemporary framework. Specifically, we base our conceptional framework on Grewal et al.'s (2023) vision for a re-imagined store in the digital age, which we use to establish its key dimensions. Drawing from the vast body of retailing research, we then identify a comprehensive set of factors along those dimensions that might explain which retail stores have a higher likelihood to close in these digital times (and which do not).

2.1. Deriving the dimensions of the framework

Our literature review shows that most knowledge about store closures comes from studies conducted in the pre-digital era, when competition was dominated by intra-channel competition. Today, however, retailers face fierce inter-channel competition as well, with online and omnichannel retailers posing a key challenge to traditional physical retail stores. Capabilities of such digital competitors can likely serve as a reference for successful retailing operations of any kind in digital times. Avery et al. (2012) and Betancourt et al. (2016) identify several features that are better served by digital offers (e.g., offering convenience, large assortments), as well as some that might provide a competitive edge to physical stores (e.g., inviting atmosphere, in-store service). In an omnichannel retailscape, physical retail stores that can match the strengths of digital competitors while also appealing to consumers with their unique capabilities likely are more successful.

Recent scholarly publications discuss the reasons consumers visit a physical store in digital times and glean novel insights into how these might translate into criteria for a "re-imagined store of the future." Our research framework draws on Grewal et al.'s (2023) vision how physical stores need to re-imagine themselves, by using factors that drive consumers' patronage of physical retail stores. Building on benefits that might attract customers to physical stores, as proposed by Breugelmans et al. (2023), namely discovery (e.g., via product testing), convenience (e.g., in terms of easy accessibility and long store hours), customization (e.g., via better consultations), community (e.g., from interacting with others while shopping), and "shoppertainment" (e.g., from enjoyable shopping experiences), Grewal et al. (2023) identify five key strategic levers that should enable physical stores to provide customers such benefits. Accordingly, physical stores should (i) provide curation, in the form of a suitable selection of merchandise and a tailored shopping environment; (ii) offer a great experience to customers; (iii) reduce frictions for customer-facing transactions; (iv) offer social elements; and (v) deliver seamless fulfillment. With these strategic levers, a physical store can achieve excellence on key dimensions related to the product, the customer, the location, and operations. However, Grewal et al. (2023, p. 482) also caution that without further guidance for retailers, "attempts to re-imagine the physical store may be limited to doomed, trial-and-error exercises."

We argue that the factors that contribute to these strategic levers of a "re-imagined store" should help the store remain successful in the digital age, preventing closure. Our framework hence builds on Grewal et al.'s (2023) vision and adapts their key dimensions to our context of store closure: (1) product selection, (2) store environment, (3) experience in store, (4) frictionless transactions, and (5) social and responsible elements. As a result of our customer focus, we drop Grewal et al.'s (2023) dimension dealing with the retailer's back-end processes, while extending social elements to also reflect responsible behavior. Our corresponding category captures how retail stores are perceived to treat 'others,' which includes customers and other stakeholders such as employees.

Product selection, as our first category, comprises factors that relate to the store's assortment, describing how well it meets consumers' needs. An assortment that is large enough to offer everything customers seek or features a unique selection of difficult-to-find products and brands, for example, should be perceived as valuable, helping the store achieve product excellence and maybe to also avoid store closure. The store environment, as our second category, captures factors that relate to the store's surrounding. The accessibility of store location and whether it is part of a vibrant neighborhood, for example, should support the attractiveness of the store environment and thus contribute to achieving location excellence and likely lower store closure probabilities. The third category, experience, relates to in-store elements that help to create an excellent experience for consumers. A nice atmosphere and the possibility to test products should elevate the experiential value of the store, which can help fulfill the needs of customers in excellent ways and draw more customers to stores. Frictionless, as the fourth category, comprises factors that help to reduce required efforts in terms of consumer-facing transactions. For example, convenient processes and long store hours should support the operational excellence of the store and might pay off in terms of lower store closure probabilities. Finally, our fifth category describes whether the store enables social interactions and acts in a responsible way. For example, stores that offer encounters with friendly service personnel and treat various stakeholder groups fairly should also reap positive outcomes.

Based on the arguments of Grewal et al. (2023), stores that excel in those five categories should be well equipped for the digital age and should hence, in general, be associated with lower store closure probabilities. However, to achieve excellence in those dimensions, monetary investments are necessary (e.g., higher labor costs for offering excellent service, investment in store designs to create an inviting atmosphere). The dependent variable of this research, store closure, accounts for such cost-effects (in contrast to measures like store patronage or store satisfaction). Specifically, a higher store closure probability implies that cost-related aspects of given factors might outweigh potential gains, so that adverse effects have to be considered. Empirical testing is hence essential.

2.2. Deriving the comprehensive set of explanatory factors for the framework

As our next step, we conducted a systematic literature search in major marketing and retailing journals[1] to identify the set of explanatory factors which were then assigned to the five key dimensions of our framework. Specifically, we followed the procedure suggested by Churchill (1979) to determine the variables that existing literature has identified as drivers of store closure as well as those that had been empirically linked to consumers' store-patronage choices and related success metrics. In total, we identified eight closure characteristics and 19 additional store attributes linked with store patronage or related outcomes. Given the large number of store attributes, we reduced complexity and potential conceptual overlap with Prestudy 1, which empirically condensed the 19 store attributes via principal components analysis into a smaller set of 13 distinct factors. Web Appendix B offers a detailed description of Prestudy 1.

We then complemented the list of factors with information from the popular press and exploratory interviews with retailing managers and executives, conducted informally during an applied city marketing conference and a retailing conference for practitioners. This procedure produced three additional factors. We list all factors, as well as their sources, in Table 1.

The resulting factors can be considered key positioning attributes that reflect long-term orientations (Levy, Weitz & Grewal, 2019), not current or time-variant trends (e.g., the integration of the latest technologies). Thus, these management decisions are strategic and not easily reversed, which makes them suitable for our long-term analysis.

In a last step, we assigned the comprehensive set of 24 factors to the five categories of our conceptual framework adapted from Grewal et al. (2023). We did so by conducting a classification task, in which we provided the set of factors and categories, along with brief descriptions, to 16 independent coders who then assigned the 24 factors to the most fitting category. We then aggregated the individual codings and assigned the respective factor to the category with the highest number of votes. Remaining differences were solved by discussion. We present the final framework in Fig. 1.

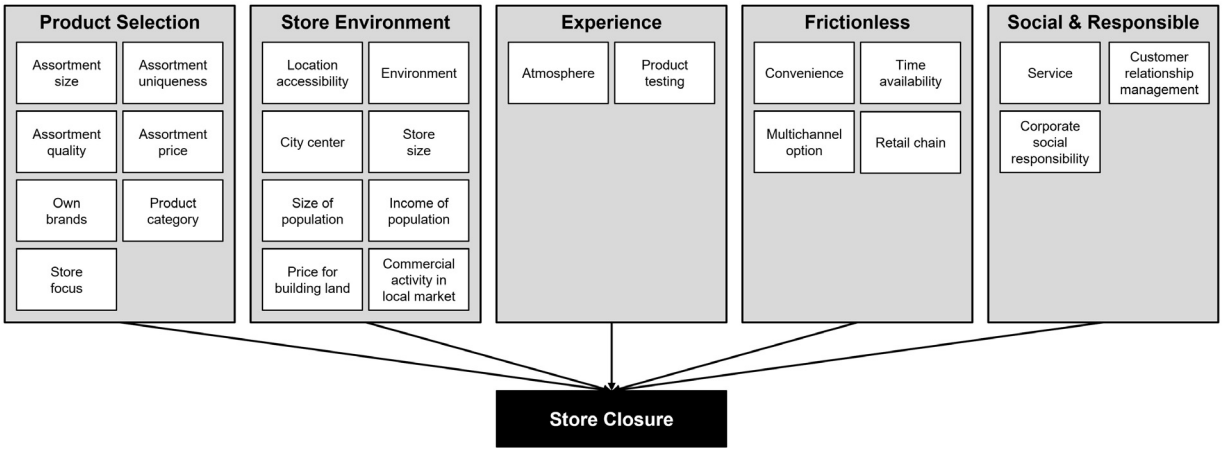

Fig. 1. Conceptual framework.

3. Research design and measures

To collect data on the different types of variables, we combined consumer perception data pertaining to a broad set of physical German retail stores, which we gathered through a nationwide, representative large-scale survey, with archival data drawn from the German Federal Statistical Office, and observational data on the matched set of the corresponding retail stores.

The observational data include stores' closures in the real-world marketplace, our dependent variable. With a time lag of about four and a half years between the independent variables (the survey took place in late 2015) and our dependent variable (the coding of store closures took place in early 2020), our research design ensures a sufficient number of store closures. Moreover, it also strongly reduces reverse causality concerns by design.

[1] The sources are *Journal of Marketing, Journal of Marketing Research, Marketing Science, Journal of Consumer Research, Journal of Retailing, International Journal of Research in Marketing, Journal of the Academy of Marketing Science, Journal of Service Research, Journal of Interactive Marketing*, and *Marketing Letters*. The systematic search started with publications in January 1997 and ended at the launch of the survey in November 2015.

Table 1
Overview of identified factors and their exemplary sources.

Category	Factor	Built from which store attribute/s	Brief description	Exemplary sources
Factors derived from studies on store closure	Store size	–	Size of physical store	Carree and Thurik (1996)
	Assortment focus	-	Focus of store on one or multiple categories	Haans and Gijsbrechts (2010)
	Product category	–	Product category	Carree and Thurik (1996)
	Spatial competition	–	Commercial activity in local market	Haans and Gijsbrechts (2010)
	Retail chain	–	Belonging to a retail chain	Star and Massel (1981)
	City center	–	Located in urban city center	Star and Massel (1981)
	Size of population	–	Number of citizens in the store district	Guler (2018)
	Income of population	–	Available income of citizens in the store district	Warren and Gordon-Larsen (2018)
Factors derived from studies on store patronage	Assortment size	–	Perceived extent of available products in a given category	Srinivasan, Anderson and Ponnavolu (2002)
	Assortment uniqueness	–	Perceived uniqueness of available brands and products	Ailawadi, Pauwels and Steenkamp (2008); Wolfinbarger and Gilly (2003)
	Assortment quality	–	Perceived quality level of available products	Grewal, Monroe and Krishnan (1998)
	Assortment price	Favorable price	Perceived low price level	Srivastava and Lurie (2004)
		Price performance	Perceived value-for-money ratio	Baker, Parasuraman, Grewal and Voss (2002); Mathwick, Malhotra and Rigdon (2001)
	Convenience	Transaction convenience	Perceived speed of transaction process	Seiders, Voss, Grewal and Godfrey (2005)
		Benefit convenience	Perceived speed of receiving the product after purchase	Berry, Seiders and Grewal (2002)
	Time availability	-	Perceived convenience of store hours	Sirohi, McLaughlin and Wittink (1998)
	Atmosphere	Experiential servicescape	Perceived experiential value of shopping at store	Grewal, Baker, Levy and Voss (2003)
		Aesthetic servicescape	Perceived aesthetic appeal of store	Mathwick et al. (2001)
	Service	Selection guide	Perceived helpfulness of service	Seiders et al. (2005)
		After-sales service	Perceived quality of after-sales service	Seiders et al. (2005); Yoo, Park and MacInnis (1998)
	Product testing	–	Perceived inspection possibilities at store	Janda, Trocchia and Gwinner (2002); Seiders et al. (2005); Wolfinbarger and Gilly (2003); Zhang, Chang and Neslin (2022)
	Location accessibility	–	Perceived ease of reaching the store	Berry et al. (2002)
	Environment	–	Perceived attractiveness of store area	Dagger and Danaher (2014)
	Customer relationship management (CRM)	–	Perceived benefit of loyalty rewards	Crosby, Evans and Cowles (1990); Hsieh, Chiu and Chiang (2005); Palmatier, Scheer, Houston, Evans and Gopalakrishna (2007)
	Corporate social responsibility (CSR)	Social responsibility	Perceived support of good causes	Walsh and Beatty (2007)
		Local community	Perceived support of local community	Oppewal, Alexander and Sullivan (2006)
		Fairness	Perceived fairness toward employees and suppliers	Lichtenstein, Drumwright and Braig (2004); Reidenbach and Robin (1990)
Factors added from interviews and popular press	Multichannel	–	Availability of online purchase options	Exploratory interviews and popular press
	Own brands	–	Availability of own brands	Exploratory interviews and popular press
	Price of building land	–	Proxy for store rent	Exploratory interviews and popular press

3.1. Sample description

We conducted a large-scale consumer survey in Germany in November 2015 to collect data on the majority of identified factors. The survey constituted the foundation of our data-gathering process and, consequently, the construction of a data sample comprising 2,548 unique physical retail stores. The survey was carried out by a commercial market research firm and comprises usable responses of 3,557 consumers, out of 4,426 initial respondents, who identified and rated the retail stores.[2] The sample effectively represents the German population in terms of gender, age, and education (44.6 % male; 15.5 % 16–24 years of age, 18.9 % 25–34 years of age, 18.4 % 35–44 years of age, 26.2 % 45–54 years of age, 21.0 % 55+ years of age; 28.7 % low education, 33.9 % medium education, 37.4 % high education). It also covers all states in the country.

We assigned respondents randomly to one of two product categories: apparel and media; all generated insights by our subsequent analyses thus apply to these categories only. We chose these categories because both were hit markedly by online shopping competitors (Kim, 2016). We informed the respondents in the apparel condition that this category included clothes such as jeans, dresses, and jackets but excluded footwear (often a different category sold in different stores). In the media category, we informed them that it included printed books, DVDs, and console games but not streaming or downloads (offers that typically cannot be bought in a physical store).

We prompted consumers to think about their most recent purchase in the respective product category and to name the item they bought (e.g., examples named by respondents included a woolen sweater, a T-shirt, and pair of jeans for the apparel category and a book, DVD with kids' movies, smartphone, and Xbox One for the media category). Respondents then named and rated the store from which they bought the item. If they made an *online* purchase, they needed to identify and rate the best physical alternative—that is, another store they likely would have selected for the purchase if they had purchased the item offline.[3]

Because the analyses are at the store, not the individual consumer, level, we used the mean scores of consumer ratings of stores that appeared more than once in the data set (492 stores).[4] In total, our constructed data set comprises consumer perceptions of 2,558 different retail stores in Germany. We excluded 10 cases with missing values, leaving a final data set of 2,548 unique physical retail stores.

The stores are spread all over Germany, located in all 16 of the country's federal states. Store distribution relative to population size of the federal states reveals a rather narrow corridor; stores do not appear to be overly concentrated or missing in any geographic areas. We thus consider the store sample an adequate representation of the German retailscape in geographic terms. Some retail chains occur frequently in the dataset, no entire chain had closed. Web Appendix D illustrates the geographical store distribution using a visual map and Web Appendix E offers additional descriptive details about the stores in our sample.

3.2. Measure of store closure

To obtain information on store closure as our dependent variable, we tracked the physical retail stores named in the survey, in terms of real-world outcomes, by coding each of the 2,548 unique physical retail stores in our final data set as either "closed" or still operating ("survived"). We coded the data set in February and March 2020, right before the COVID-19 pandemic imposed unprecedented effects on store closure. Two independent coders identified each store, using the information respondents provided about its name, city, type of surrounding (e.g., city center), and item bought. For each store, the coders checked whether it had closed or was still active as of February/March 2020, using various information sources, including Google search, Google maps, firm and association directories, and local news articles. With our definition of store closures as the permanent termination of the store's business operations at a given location, takeovers or possible relocations would qualify as store closures, but they are very rare in our sample. Intercoder reliability was high (98 %); the few disagreements were resolved by a third coder, if necessary.

In our analyses, our dependent variable equals 1 if the store was closed in February/March 2020 and 0 otherwise. We identified 283 closed retail stores, equivalent to a share of 11 % in our data set—similar to the overall 10 % closure rate that industry experts predicted at the time of the survey to occur within the next five years (IFH Köln 2015). We interpret this as further support that the physical stores named by our representative sample of consumers likely offer a reasonable representation of the German market.

[2] Cases were dropped if respondents did not name and rate a valid physical store in Germany that could be identified and tracked, to ensure a match with actual store closures and survivors as our dependent variable. For example, we dropped cases in which respondents wrote "I don't know" as the name of the retailer, offered a pure online retailer for a physical store, or named a store outside Germany.

[3] We collected additional information about respondents' individual store choices and store competitors from online and offline channels, which are not part of the focal analyses.

[4] We compared the Cronbach's alpha values of all constructs for stores rated by multiple respondents with stores rated by one respondent only; we found no substantial difference. We also compared the means and standard deviations of consumer perceived store factors for stores with one versus multiple respondents as detailed in Web Appendix C. The standard deviations are not too high; they are lower for stores rated by multiple coders than for stores rated by one coder. If we include a dummy variable (1 = multiple respondents per store, 0 otherwise) as an additional control in the main model, the results remain robust.

3.3. Measures of factors

Our conceptual framework encompasses a broad, diverse set of factors that are, in part, difficult to measure objectively but probably highly relevant to explain the probability of a store closure. We thus combined different data collection approaches.

We first gathered data on the 13 factors that we derived from store patronage studies and that capture consumers' perceptions of various store attributes with multi-item scales we administered as part of the survey. In this large-scale online survey, conducted in 2015, we asked consumers to rate the physical retailer from which they bought the respective product with regard to the 13 store factors in our conceptual framework, using established multi-item seven-point scales in all cases. Because of the relatively large number of factors, we conducted a preparatory scale refinement study before the main study to avoid respondent fatigue. As a result of that Prestudy 2, we reduced the original 57 items to 46 (De Jong, Steenkamp & Veldkamp, 2009). Web Appendix F provides a full description of Prestudy 2; it also contains the averaged scale items we used to assess consumer-perceived store factors in the main study. Web Appendix G details the inter-factor correlations. The results exhibit high reliability, with Cronbach's alpha scores exceeding 0.80 for each factor.

To gather data on the remaining factors, we then relied on additional information from the same survey and on new data collection efforts, based on archival data sources. Specifically, we asked the respondents in the same survey to provide more store information. The scales for this category rely on single items referring to retailer attributes that can be judged more objectively (e.g., whether the store offers private labels). Specifically, we measured store size and store focus with seven-point, single items ("Compared with an average Karstadt department store, [chosen store] is much smaller (1)/much larger (7)"[5] and "The assortment of [chosen store] is concentrated on one trade group (1)/comprises many different trade groups (7)"). Product category is a binary variable, indicating whether the respondent had been assigned to the apparel (0) or media (1) category.[6] The survey also included a seven-point, single item that asked whether the retailer offers mostly products of other brands (1) or private labels (7), capturing the "own brand" variable. In addition, we captured whether the respective store was located in a central city center (1, 0 otherwise) and if it offers multichannel options to consumers, based on whether the retailer offers digital channels for making purchases (1, 0 otherwise). Finally, for each of the 2,548 physical stores in the data set, an independent coder determined whether it belongs to a retail chain, such that at least one additional store of the same brand existed (1, 0 otherwise).

To gather data on the factors that describe the local region where stores are located, as part of the category "store environment," we determined for each store the greater area/district. With the information respondents provided (e.g., store name, city), we identified each store/district combination, then used this information to collect archival data from the German Federal Statistical Office about corresponding market characteristics in 2015, using its official district identification numbers. For each store in the data set, we identified the population size in its home region, the average income of the population in that region, and the average price for building land in the region, as a proxy of store rent. To measure the commercial activity in the local market, as a proxy for spatial competition, we further collected the gross domestic product (GDP) in the region. All this information refers to 2015, so it matches the time we collected the survey data.[7] We used logarithm values for these district-level characteristics to account for their skewed nature. We detail all measures in the appendix.

4. Estimation approach

4.1. Modeling challenges

Potential for sample selection bias. Even with the preceding evidence, we took several steps to reduce the potential for a sample selection bias. First, we ensured that the respondents were representative of the German population in terms of gender, age, and education. Store selection was based on these respondents' responses. Second, we ensured that the selected set of stores also supported some generalization. Because we asked respondents for physical stores that were relevant to them, resembling an evoked set, we limited the presence of stores that are systematically unattractive at the beginning of the observation period. At the same time, we also probed for stores which were not chosen by the respondents, limiting the positively biased set of stores at least to some degree. Third, descriptive information further supported the representativeness of the stores. For example, the similarity in the closure rate in our data to that predicted for Germany at the time of the consumer survey (IFH Köln 2015) indicates that our stores match the German retailscape relatively well. Moreover, the even geographic distribution of stores across Germany (Web Appendix D) adds further support.

Potential for reverse causality bias. Reverse causality bias (i.e., looming store closures affect consumers' perceptions of store attributes) is unlikely to be an issue for three reasons. First, the long gap of four and a half years between the survey

[5] The German retail chain Karstadt served as the reference category; it is well-known for its large stores.

[6] In the rare case of multiple respondents rating the same store for different types of purchases (e.g., several major retail chains offer both apparel and media products), we set the variable to reflect the product category with the majority of purchases. The results remain robust when we use the respective percentage instead.

[7] In a few cases, the official database had no entry for the price of land in 2015 but offered it for 2016, which we used as a substitute. In the rare case that a region was not unambiguously identifiable in the official register, such as when two regions shared the same name, we used the larger region.

(November 2015) and our coding of store survival (February/March 2020) minimizes reverse causality concerns. Second, as mentioned, our sample consists exclusively of stores in consumers' evoked sets, so they were less likely to have been in stark decline at the time of the survey (though we cannot rule this out completely). Third, we focus on key positioning attributes that are strategic in nature and not prone to fluctuate over time, as would likely be the case with tactical measures.

Heterogeneity of stores and purchases. Our decision to limit reported purchases and stores to two distinct product categories (apparel, excluding shoes, and media, excluding digital formats) reduces the potential effects of heterogeneity in the retailscape.

Unequal distribution of outcomes. In most constellations, including ours, store closures are a relatively rare event. Even if the observed closure rate mirrors developments in Germany and the absolute number of closures is sufficient for rigorous analyses, we still note the strong imbalance of survivors versus closures. To enhance the predictive accuracy of these rare events, we employ a rare-case logistic regression technique with penalized least squares (Firth adjustment) to reduce the potential bias in the maximum likelihood estimates (Firth, 1993; Heinze & Schemper, 2002; King & Zeng, 2001). The concept behind this type of logistic regression involves enhancing the score function's effectiveness by incorporating a term that offsets the first-order term derived from the asymptotic expansion of the bias in maximum likelihood estimations. This additional term approaches zero as the sample grows larger and updates the penalized likelihood estimation model at every iteration of a numerical procedure to maximize the log likelihood function. A key advantage is that it reduces the bias in parameter estimates when the events of interest are rare, resulting in more robust and reliable parameter estimates.

4.2. Model specification

We analyze how the five categories of our factors (i.e., product selection, store environment, experience, frictionless, and social and responsible) are linked to our binary dependent variable, which takes the value of $Y_i = 1$ if store i had closed and the value of $Y_i = 0$ if store i was still active as of 2020. We analyze the probability that physical store i is closed as a function of vector PRO_i, comprising the seven factors related to the product selection of store i; vector ENV_i, comprising the eight factors related to store environment of store i; vector EXP_i, comprising the two factors related to experience; vector FRI_i, comprising the four factors related to frictionless; and vector SOC_i, comprising the three factors related to social and responsible. Eq. (1) presents the resulting model with coefficient vectors α_{0-5}:

$$Prob(Y_i = 1) = \frac{1}{1 + e^{-\zeta}}, \tag{1}$$

where $\zeta_i = \alpha_0 + \alpha_1 PRO_i + \alpha_2 ENV_i + \alpha_3 EXP_i + \alpha_4 FRI_i + \alpha_5 SOC_i$.

5. Full sample results

We first estimate the model using all stores in the data, that is, combining apparel and media product stores. In a follow-up analysis, we then run sample splits and estimate both product categories separately. Table 2 presents the results of the rare-case logistic regression analysis for the full sample. They reveal that variables from four of the five categories (i.e., product selection, store environment, experience, and frictionless) explain a significant share of store closure.[8] We find that many of those factors which have been absent from previous research offer substantial insights.

5.1. Results for framework dimensions

Product selection. Out of the seven factors that constitute the category of product selection, three are significantly related to store closure. First, we find a positive (i.e., harmful) relationship between an "exclusive" assortment curation (i.e., offering unique products and brands that are difficult to find elsewhere) and store closure ($b = .177$, $p < .01$). This finding contrasts with expectations that a unique assortment benefits retailers (Mantrala et al., 2009; Stassen, Mittelstaedt & Mittelstaedt, 1999) and provides a safeguard against digital substitute offers (Aufreiter et al., 2012). We address this in more depth in a subsequent analysis. Second, stores with diversified offerings are associated with a lower likelihood of closure (store focus: $b = -.118$, $p < .01$). Third, media product stores suffer a higher likelihood of closure than apparel stores ($b = .401$, $p < .01$), potentially as a consequence of the societal shift from tangible to intangible offerings for media products (e.g., downloading and streaming; Hennig-Thurau & Houston, 2019).

The other product selection factors in our framework (i.e., assortment size, assortment quality, assortment price, own brands) have no significant association with store closure. They may be meaningful for consumers' store evaluation, but they cannot explain why certain stores in our data set closed.

Store environment. Four of the eight factors in the store environment category are significantly associated with store closure. A key factor appears to be the accessibility of a store's location, which is associated with a decreased likelihood of store closure ($b = -.160$, $p < .01$), indicating the economic importance of customers' perceived ease of reaching a store. Larger stores have a lower likelihood of closure (store size: $b = -.091$, $p < .05$), in line with studies conducted in pre-digital

[8] As a robustness check, we ran the model as a logistic regression with clustered standard errors accounting for multiple stores of certain retail brands (e.g., H&M); results are robust (see Web Appendix H).

Table 2
Rare-case logistic regression of penalized least squares results (full sample).

Group/variable	Coefficient	OR	SE	*p*	*VIF*
Product selection					
Assortment size	.002	1.002	.062	.979	1.83
Assortment uniqueness	.177*	1.194	.057	.002	1.65
Assortment quality	−.063	.938	.074	.393	2.18
Assortment price	−.060	.942	.068	.382	1.58
Own brands	−.010	.990	.037	.786	1.46
Store focus	−.118*	.889	.039	.002	1.33
Product category	.401*	1.493	.154	.009	1.42
Store environment					
Location accessibility	−.160*	.852	.049	.001	1.46
Environment	.056	1.058	.056	.317	1.64
City center	.368*	1.444	.150	.014	1.19
Store size	−.091*	.913	.042	.032	1.47
Size of population	−.228*	.796	.081	.005	3.97
Income of population	−1.385	.250	.763	.069	1.92
Price for building land	.209	1.232	.124	.093	3.39
GDP	.186	1.205	.107	.081	3.05
Experience					
Atmosphere	−.228*	.796	.090	.011	2.87
Product testing	.130	1.139	.082	.112	2.30
Frictionless					
Convenience	.104	1.110	.086	.226	2.05
Time availability	−.174*	.840	.067	.009	1.63
Multichannel option	−.213	.809	.165	.197	1.13
Retail chain	−.843*	.430	.269	.002	1.08
Social and responsible					
Service	.015	1.015	.074	.843	2.24
CRM	.081	1.085	.052	.115	1.66
CSR	.086	1.089	.076	.260	2.34
Intercept	12.091	178,209.3	7.473	.106	
Fit statistics					
Wald χ^2 (d.f., sign.)	105.91 (24, $p < .001$)				
AIC	1,585.394				
BIC	1,731.471				
Hit rate	88.66 %				
N	2,548				

Note: The dependent variable equals 1 if the physical retail store had closed by February/March 2020 and 0 if it was still in operation. OR, odds ratio; SE, standard error of the coefficient; VIF, variance inflation factor; AIC, Akaike information criterion; BIC, Bayesian information criterion. *$p < .05$.

times (Carree & Thurik, 1996; Star & Massel, 1981). Being located in a city center, however, is rather detrimental: closure is more likely for stores located in an urban city center than elsewhere ($b = .368$, $p < .05$), indicating that Main Street shopping in inner cities continues to be under threat and is more volatile than other locations, despite its advantages for customers. By contrast, regions with large populations (and thus large potential customer bases) enjoy lower store closure rates ($b = -.228$, $p < .01$). This finding aligns with Guler's (2018) observation that high-density store networks can survive better in highly populated areas.

Consumers' perception of the environment of the store location are not associated with store closure in our data set. The remaining variables, which characterize the local market in which the store is located, show only marginally significant effects: the negative association of store closure with the income of the population, indicating more purchasing power, is marginally significant ($b = -1.385$, $p < .10$). Warren and Gordon-Larsen (2018) also find only a significant association between tract-level poverty and closure probabilities for some analyzed cases, and not for others. Regions with high prices for land and strong commercial activities, approximating expensive store rents and increased spatial competition respectively, are associated with increased store closure probabilities, but reach only marginal significance (price for building land: $b = .209$, $p < .10$; GDP: $b = .186$, $p < .10$).

Experience. In terms of the in-store experience, we find that the perceived store atmosphere as the store's experiential and aesthetic servicescape has a negative, significant relationship to store closure ($b = -.228$, $p < .05$). Thus, offering consumers a favorable shopping experience in a nice setting is associated with a decreased likelihood of store closure. The second variable, product testing, is not significantly associated with store closure in our study.

Frictionless. Two of the four factors are significantly linked with store closure in the frictionless category. The time availability of the store, or hours of operation ($b = -.174$, $p < .01$), significantly contributes to a lower likelihood of store closure. Considering that digital stores are always open, beneficial store hours seemingly outweigh the costs of such a store management decision. Being part of a retail chain is associated with a decreased probability of store closures ($b = -.843$, $p < .01$), likely due to their greater financial security than independent stores, also in line with Star and Massel (1981).

Consumers' perceptions of convenient processes and the availability of multichannel options at the point in time when the survey was conducted remain without significant association with store closure in our study. These results suggest that a multichannel approach is more essential for the company than for the store, such that consumer switching across channels is part of the business model, rather than a reason for physical store closures. An alternative explanation for the lack of a significant association is that multichannel options might be difficult for respondents to judge, considering the inevitably idiosyncratic differences in their personal shopping experiences and expertise.

Social and responsible. Offering good service, providing benefits to loyal customers as part of a CRM strategy, and being active in CSR do not relate to store closure in our analysis. These results suggest that required investments in this category might not necessarily exceed potential economic gains.

5.2. Probing the effect of unique assortment

To understand why an assortment characterized by an exclusive, unique curation is positively associated with store closure (rather than negatively), we estimated an additional model that also contains an interaction between assortment uniqueness and product category. As Web Appendix I shows, the positive and significant interaction term ($b = .222$, $p < .05$) indicates that the media category suffers more from a focus on unique products and brands that are difficult to find elsewhere. The positive association of assortment uniqueness with store closure is even *exclusive* to the media category, as revealed by a simple slope analysis (Fig. 2): a media store that offers a unique (niche) assortment has a higher likelihood of closure ($p < .05$) than one that offers broadly available mass merchandise. By contrast, the effect is non-significant for apparel. This finding aligns with the media industry's blockbuster orientation (Elberse, 2013), as we discuss further in the "Practical implications" section.

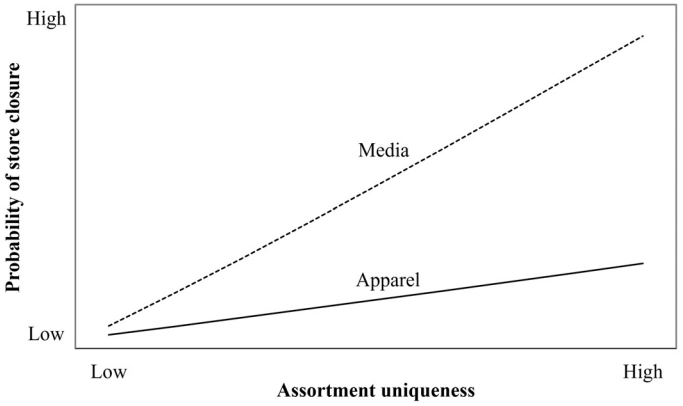

Fig. 2. Simple slope analysis of assortment uniqueness × product category interaction.

5.3. Accounting for market-level changes

To account for potential district-specific urbanization and depopulation trends, we re-operationalized the four factors that measure store environment on a market level: population size, population income, price for land, and GDP. Specifically, we analyzed changes in the market, rather than the respective factors' absolute value. To calculate the change in these factors, we compared their initial value at the time of the survey (2015) with the updated value at the time of the closure coding (2020), again using the archival data of the German Federal Statistical Office. None of the change variables are significant; the pattern of results of the other variables remains robust (see Web Appendix J).

6. Contextualizing the results: product category, store size, and location

To provide an understanding of contingencies, we reanalyzed our sample regarding three perspectives: the products that are offered, the size of the store, and the store's geographic location.

To explore the role of the products, we compared results for those stores in our sample that offer apparel with those stores that offer media products. With regard to store size, we divided the sample by median split into smaller and larger stores, and with regard to locations, we compared the results for those stores located in the 'city center' with those which have non–city center locations. For each perspective, we explore model-free differences in average closure rates first and then run separate analyses for each subsample. The results of these additional analyses show how the effects of specific factors differ, depending on whether the store focuses on selling apparel (vs. media products), is smaller (vs. larger), or is located within (vs. outside) the city center.

Table 3
Overview of factors that significantly correlate with store closure.

Group/variable	Full sample	Product		Store size		City center	
		Apparel	Media	Small	Large	City	Non-city
Product selection							
Assortment size							
Assortment uniqueness	+		+		+	+	+
Assortment quality			–				
Assortment price			+				
Own brands							
Store focus	–	–		–			–
Product category	+				+	+	
Store environment							
Location accessibility	–	–		–	–	–	
Environment							
City center	+		+		+		
Store size	–	–					
Size of population	–	–			–	–	
Income of population		–					
Price of building land		+					
GDP						+	
Experience							
Atmosphere	–			–			–
Product testing							
Frictionless							
Convenience							
Time availability	–		–		–		–
Multichannel option							
Retail chain	–	–		–		–	
Social and responsible							
Service							
CRM							
CSR							

Note: Plusses and minuses indicate which drivers have a significant ($p < .05$) and positive or negative effect in which settings on store closure (i.e., + means that a factor increases the risk of store closure and – means that a factor decreases the risk of store closure).

Table 3 provides an overview of the results. Owing to the nature of sample splits, the number of store closures decreases substantially in these subsample analyses; as such, these supplementary results are exploratory only and should be treated accordingly.

6.1. Stores selling apparel versus media products

A model-free mean comparison with a chi-square test indicates that both the apparel and media categories are equally at risk (closure rates: apparel 11.0 %; media 11.3 %; n.s.). However, we note differences for the importance of the factors that explain closure probabilities when we run separate models. The stores focusing on apparel have a lower closure rate if they are diversified in their offerings (store focus; $b = –.193$, $p < .01$), easily accessible ($b = –.196$, $p < .01$), rather large ($b = –.172$, $p < .01$), and supported by a retail chain ($b = –1.712$, $p < .01$). Moreover, apparel stores located in districts with more consumers ($b = –.296$, $p < .01$) with higher income ($b = –2.310$, $p < .05$) have lower closure rates, whereas stores with higher rent have higher closure rates ($b = .379$, $p < .05$). Stores selling media products, by contrast, have a lower closure probability if they offer a high-quality assortment ($b = –.419$, $p < .01$) and convenient store hours ($b = –.303$, $p < .01$), but they face higher closure risks if they are selling niche products (assortment uniqueness; $b = .235$, $p < .01$) at lower prices ($b = .276$, $p < .05$) in the city center ($b = .611$, $p < .05$).

In the media domain, where many products are experience goods, stores appear to benefit from consumers' valuing high-quality assortments of best-selling brands and products, for which they are able to charge corresponding price levels. Trying to compete on lower prices is seemingly linked to higher closure rates here, a finding that supports our notion about the difference between closure and patronage as dependent variables. Consumers appreciate low prices, but entering price wars often has detrimental economic effects for a store. Retail chain affiliations also appear to help in the apparel domain, but not in the media domain. This finding might be because multiple retail chains offer their own unique assortments in the apparel domain. Media products, however, are typically not strongly linked to retail chain brands, so they risk greater relative substitutability across retail stores. The full results are shown in Web Appendix K.

6.2. Smaller versus larger stores

A simple mean comparison between smaller and larger stores confirms a significant difference, with the closure rate being higher for smaller than larger stores (12.9 % vs. 7.4 %; $p < .01$). When we run separate models for smaller and

larger stores, we also observe store size–specific effects for our factors, indicating differences in what explains store closure probabilities for smaller and larger stores. Smaller stores have a lower closure rate if they have a diversified offering (store focus: $b = -.162$, $p < .01$), are located at an accessible location ($b = -.146$, $p < .05$), offer a good atmosphere ($b = -.314$, $p < .01$), and enjoy the support of a retail chain ($b = -.886$, $p < .01$).

Larger stores are associated with reduced closure risk if they are accessible in terms of time ($b = -.408$, $p < .01$) and location ($b = -.185$, $p < .05$) and have access to a large pool of residents in their district (population size: $b = -.289$, $p < .05$). However, they struggle if they offer niche content (assortment uniqueness: $b = .274$, $p < .01$) or media products ($b = .881$, $p < .01$) and are located in city centers ($b = .501$, $p < .05$). Further details are available in Web Appendix L.

6.3. City center versus non-city center locations

In our sample, the closure rate is significantly higher for city center stores (12.8 %) than for stores located outside the city center (8.4 %, $p < .001$). Also, the factors that determine closure differs: Inside the city center, stores have a lower closure rate if they have an accessible location ($b = -.200$, $p < .01$) in a region with a larger population ($b = -.261$, $p < .05$) and get support from a retail chain ($b = -.901$, $p < .01$). They appear to be at risk if they focus on niche offerings ($b = .146$, $p < .05$) and media products ($b = .435$, $p < .05$) and are exposed to spatial competition (GDP, $b = .316$, $p < .05$). Outside the city center, stores have lower closure rates if they offer a diversified product focus ($b = -.158$, $p < .05$), a nice atmosphere ($b = -.310$, $p < .05$), and convenient store hours ($b = -.280$, $p < .05$), while also suffering from niche offerings ($b = .208$, $p < .05$). The lack of association between location accessibility and store closure here suggests that consumers likely travel by car when shopping outside the city center, so that accessibility may be less consequential.

Why is store atmosphere significant outside the city center, but not within? A closer inspection shows that store atmosphere is higher inside than outside the city center, while exhibiting a lower variance. We suspect that stores located outside the city center may find it easier to differentiate themselves on this retail attribute and gain a competitive advantage. We provide more detailed results in Web Appendix M.

A separate issue is store locations in major cities versus those in the rest of the country. The closure rates in our data set for stores in Germany's largest cities (e.g., Munich, Hamburg), with at least one million inhabitants, tend to be lower than those in the rest of the country (closure rates: 8.2 % big city; 11.4% rest; $p < .10$). We do not find difference in the closure rate between general geographic areas (e.g., stores located in Eastern vs. Western Germany), however.

6.4. Integrative analysis with all three perspectives

Finally, we integrate all three contingency perspectives to determine the average closure rates for each combination. Fig. 3 illustrates that large stores dominate small stores, but combinations matter too. For apparel-focused stores within a city center, the closure rates are lower for large than small stores ($p = .001$). For media-focused stores, the difference in closure rates for large and small stores is only significant outside a city center ($p < .01$), and closure rates also differ outside and inside the city center for small ($p < .05$) and large stores ($p < .01$).

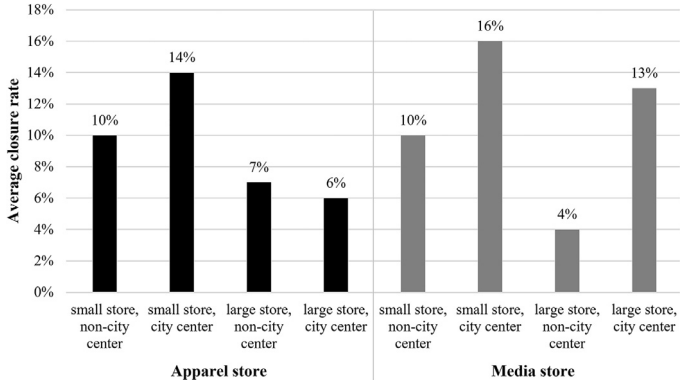

Fig. 3. Illustrative comparison of average closure rates for different store types in our data set.

7. Discussion

Our research shows that a diverse set of factors can help clarify which physical retail stores are more likely to close—or survive—in an increasingly digital retailscape. We contextualize the results for apparel and media products, smaller and larger stores, and store locations inside and outside a city center. We now discuss the practical implications and theoretical contributions of our study, before concluding with an agenda for future research.

7.1. Practical implications

Addressing the decline of physical retailing is a real-world problem with relevant implications for retailers, policy makers, and society as a whole. We offer first insights by exploiting a unique empirical data set pertaining to the closure of more than 2,500 physical retail stores in this digital age. By investigating the linkage between a set of manageable factors and store closure, this study informs retail store managers and policy makers at a time when the shift to digital channels is affecting many physical stores as well as city infrastructures.

Considering the results of our study, we recommend that managers of physical retail stores offer a suitable product selection, ensure the easy accessibility of their store location, provide a great experience to customers, and ensure frictionless transactions, such as by offering convenient store hours. They should thus emphasize aspects that are unique to physical retailing, such as by offering an exciting physical shopping experience with an inviting atmosphere. Yet physical stores should also try to match the ease of online shopping, such as by ensuring they are easily accessible in terms of location and opening hours. Consumers in the digital age are accustomed to shopping wherever and whenever they feel like it; thus, matching this "new normal" with convenient store hours and accessible store locations appears to be a sensible strategy.

Our findings add first empirical insights to the conceptual arguments of Grewal et al. (2023), from whom we adopt the conceptual framework, and Breugelmans et al. (2023), who propose access convenience and experiential value of a store to be among the key reasons consumers visit physical stores in the digital age. Location is an important consideration when opening a store, but improvements to store accessibility, together with maintaining an appealing store atmosphere, can be ongoing operational efforts (see Brüggen, Foubert & Gremler, 2011; Dagger & Danaher, 2014).

A less expected finding is that media stores with an exclusive, curated assortment of unique (niche) merchandise are associated with higher store closure probabilities than apparel stores with such offerings. That is, media stores featuring products that can be bought anywhere (e.g., bestselling novels) tend to be associated with a lower closure risk than stores that offer difficult-to-find items (e.g., rare book editions). This finding is in line with observations that the media industry relies on a blockbuster strategy, in which specific brands capture a vast share of revenues (Elberse, 2013; Hennig-Thurau & Houston, 2019). Entertainment consumers appear increasingly focused on mega-franchises and universes (e.g., Star Wars, Harry Potter, Marvel), which are available virtually everywhere (Klostermann et al., 2024). Stores that do not offer such mainstream products and brands struggle; achieving economic profitability by selling art-house and independent media offerings in physical retail stores appears difficult in an industry characterized by frequent innovations. Profiting from the "long tail" of media products might be a more promising strategy for an online channel, in which the storage of niche products is less cost-intensive and the customer pool is not confined spatially (Anderson, 2006; Bell & Song, 2007). Interestingly, the detrimental impact of niche offerings appears to apply to large stores in particular, whereas small stores seem to be affected less by it; niche-oriented product curations thus appear to work better in the setting of smaller stores.

We also observe higher closure probabilities for stores that are (1) smaller in size, (2) focused on a single product category, (3) located in a city center, (4) not backed up by a retail chain, and (5) located in a city with a low population, meaning fewer potential customers. Many of these issues also were important in pre-digital times; we show that they continue to be a pressing concern for physical retailers in the digital age.

Our contingency analyses also provide some tentative customized insights for different store types and interest groups. For example, small store owners can consider the findings that apply to their store size, which differ from those of large stores. In our integrative illustrative plotting of closure rates, we also find that large apparel stores have lower closure rates inside the city center while large media stores and small stores, independent of product category, have lower closure rates outside the city center. Further research can explore patterns of relevant factors in different settings.

7.2. Theoretical contributions

This research contributes to retailing literature in several meaningful ways. First, it offers empirical insights into how a *comprehensive set of factors* can explain actual store closures. Whereas previous attempts typically focused on a few selected variables, our unique data collection approach enables us to include a broad set of (partly) difficult-to-measure variables that are of critical importance to explaining store closure probabilities. In doing so, we offer new findings that show the significant associations of product selection (e.g., assortment uniqueness), store environment (e.g., an accessible location), experience in store (e.g., store atmosphere), and frictionless transactions (e.g., via convenient store hours) with store closure. These novel insights represent meaningful contributions to retailing theory.

While these factors come from the stream of research dealing with store patronage (intentions), insights into their association with store closure are important because our outcome variable constitutes a bottom-line performance metric of a physical retail store, which is also driven by costs, competition, and business functions (e.g., financing). Our finding that low prices in media stores are associated with higher closure rates is an empirical illustration of this conceptual argument. Whereas meta-analyses on store patronage find lower or more favorable prices to increase store patronage (Blut et al., 2018; Pan & Zinkhan, 2006), its economic bottom-line effect can be detrimental under certain circumstances. Research on store closure thus represents a meaningful addition to existing retailing studies that prioritize consumer attitudes, as expressed in dependent measures such as satisfaction, word of mouth, or store patronage intentions.

When comparing our key findings with those of meta-analyses focused on such customer metrics (Blut et al., 2018; Pan & Zinkhan, 2006), we note both commonalities and differences. That is, we observe overlaps of some pertinent factors, such

as atmosphere, but our data prevent us from confirming the relevance of other factors, such as service. Consumers likely appreciate good advice and help with after-purchase problems, but we find no significant association with store closure, which might reflect the high labor costs that good service typically incurs. This is interesting to note as service had been found to be the second most important driver of store patronage in the meta-analysis by Pan and Zinkhan (2006). Our first empirical insights suggest, however, that service might no longer be that important; an observation which is supported by Blut et al. (2018) who find service to foster recommendation behaviors but not patronage and purchase behaviors. We further added new factors, which had neither been part in the two previous meta-analyses dealing with patronage behaviors nor in any closure-related study. For instance, given the rising interest in sustainability and responsibility, we tested for a possible impact of CSR-related activities. Whereas this might become important in the future, with a new generation of customers on the rise, it was not able to help the retailers in our dataset survive in the past.

The contrast between what consumers like and what benefits a store economically raises a key concern: insights from attitudinal retailing studies should not be readily applied to store closure questions. The more researchers learn about the bottom-line effects of store attributes on store closures, the more they can help physical retailers avoid store closures in a sustainable way that helps them achieve long-term profitability.

Second, the majority of key studies on store closure took place in pre-digital times (Carree & Thurik, 1996; Star & Massel, 1981). We extend their insights by analyzing the decline of physical retailing in the context of the *current digital era*. For the effect on store patronage, Pan and Zinkhan (2006, p. 239) speculated nearly two decades ago that factors such as atmosphere and store accessibility "may become less crucial or even obsolete" in the digital future. For store atmosphere, Blut et al. (2018), however, found that store atmosphere gained importance in studies conducted after 2000 compared to those conducted before 2000. As a contribution to this discussion, we establish the significant association of store atmosphere with store closures in the digital age: it constitutes a key capability of a physical store that is difficult for digital stores to match, which may help explain why this particular attribute is linked to a decrease in store closure risks in digital times. Concerning store accessibility, the second factor that was predicted to lose importance in digital times by Pan and Zinkhan (2006), Blut et al. (2018) offer mixed results. They find spatial and temporal distance to lose impact after 2000, proximity to home and work to keep moderate importance and factors like access to the store and access from parking to have little or no significant influence on store patronage. Our data shows that stores that consumers find conveniently accessible have a significantly lower probability to close; the availability of online options that bring the purchased items right to consumers' homes has hence not (yet) eroded the relevance of a good location. We also confirm that many store closure-specific findings from pre-digital times still apply, such as the higher likelihood of closures of small stores, independent stores, and those in city centers (Carree & Thurik, 1996; Star & Massel, 1981).

Third, we respond to calls for more *contextualization* in marketing research by analyzing our unique data from three different perspectives and thereby customizing insights from the product, store, and city perspectives. A comparison of the emerging result patterns reveals both overlapping attribute structures (e.g., accessible location is beneficial in most settings) and findings that are unique to the respective setting (e.g., detrimental price associations in the media category). We thereby boost the managerial insights of our research while also illustrating the continued need for greater contextualization in empirical studies.

7.3. Limitations and future research

Our research represents a first step toward empirically addressing the decline in physical retailing. This important research topic offers high ecological value, but it is challenging to investigate empirically. With a unique combination of survey, archival, and observational data, we propose a new way to account for difficult-to-measure factors, including those dealing with consumers' perceptions, and to determine their implications for store closures. Despite generating first empirical insights into the underlying phenomenon, this approach also raises limitations.

First, the data collection process is in line with our goal to analyze the decline of existing physical retail stores. However, it prevents us from analyzing the emergence of newly opened stores, which lies beyond the scope of our analysis. A new empirical research design could broaden the focus to explore the factors that explain which new store openings have a higher likelihood to become established retail stores in the digital age and which will vanish soon after their formation.

Second, we designed our data collection approach to reduce endogeneity concerns (as detailed in the Methodology section), but we cannot rule out bias completely. Especially the potential for some potential positivity bias in our sample needs to be acknowledged. The choice of stores came from a representative set of respondents (reflecting their experiences with the stores), rather than being randomized by us. It is possible that the selection of stores favors more successful stores over less successful ones, as consumers might have tended to think of a positive experience, which is supported by the prompt to name a store considered for a purchase. We tried to limit this by including non-chosen stores next to chosen stores and offering information supporting the representative character of our sample, but the selection of stores might lean toward well-performing stores, implying that the observed closure rate might be below the market average. Instead of treating our findings as causal relationships for all types of stores, we thus interpret our results with care as informative, significant associations of specific factors of well-performing stores and subsequent closure rates, which are supported by directional logic.

Third, with regard to the range of factors, we offer insights into many key positioning store attributes, but we could not include time-variant factors. That is, whereas our study design with a strong time separation reduces reverse causality concerns, it also prevents us from addressing the latest digital technologies as potential success drivers

(Grewal, Noble, Roggeveen & Nordfalt, 2020; Shankar et al., 2021)—a notable drawback, considering their strong establishment in retailing literature (Gao, Agrawal & Cui, 2022; Neslin, 2022) and indisputable importance for competing with digital retailing. Our study design limits our ability to offer recommendations on those factors, but we hope the insights generated will spur additional work that is better suited to addressing these important drivers.

Beyond addressing such limitations with future research designs, many other research questions remain unaddressed in the context of store closures. The existing body of research is rather nascent, which is striking given the high importance of the topic. In the following, we hence propose several concrete avenues for future research on store closure.

Extend the product categories to which the findings apply. In our analysis, we focused on apparel and media, to limit the heterogeneity of stores and purchase situations, but this choice also prevents us from generalizing our findings to other categories. Most determinants of store closures likely apply to a broad set of categories, but others require testing, as exemplified by our finding on the interaction of assortment uniqueness with the product category and the contextualization for apparel versus media stores. It would be insightful to compare categories that have not been hit that hard by online competition with those that have now become fairly digital by now. In the case of media, in contrast to apparel, some products (e.g., books) have been digitally transformed, which also has an impact on the particular competitive landscape and should be examined in more detail in future studies. In addition to including other categories, a systematic analysis that compares, for example, search goods, experience goods, and credence goods, along with their systematic variations, could be a good starting point. Some attributes differ across categories as well, such as the possibility of product testing; Zhang et al. (2022) offer notable insights into such an endeavor.

Extend the countries to which the findings apply. Our dataset reflects the retailscape of Germany, one of the world's largest economies, but shopping habits and consumer preferences vary widely across countries, institutional and regulatory environments, and cultures. For example, consumers in various countries value convenience differently and have different preferences for how they want to experience Main Street shopping: U.S. consumers likely assign more importance to parking options and appreciate shopping malls, whereas many Germans tend to favor public transport connections and small stores in historic centers. Because the decline of physical retailing is a global phenomenon, cross-country studies are necessary to tailor the findings to local preferences.

Extend the set of factors (even) further. Although our approach yields a comprehensive set of factors, future studies might examine other factors or improve the measurement of existing ones. Importantly, we encourage scholars to address the effects of competition more directly, as it is a key determinant in the domain of store closures (Haans & Gijsbrechts, 2010; Mayadunne et al., 2018; Shields & Kures, 2007). Whereas we could only approximate the spatial competition using the GDP of the local region, future research could directly measure the spatial proximity of the store to other outlets and their density. Testing its effect on store closure would be interesting to (re)investigate, as nearby competitive stores could either reduce profitability or increase traffic, due to agglomeration effects, so the impact on store closures is likely non-trivial. Moreover, researchers could extend the analysis of competition effects to online stores and differentiate intra- and inter-channel competitors. For a physical store to survive in the digital age, it needs to compete with both physical and digital rivals. Analyzing the effect of technology is a key component that we could not adequately capture in our design, thus requiring new research. Consumers' ability to identify multichannel options and the availability of own brands at the time of our survey might explain why these variables do not reach significance in this study, requiring better measurement approaches in the future. Additional relevant factors might include other location-based or regional factors (e.g., different types of neighborhoods or local areas) and personal factors (e.g., store owners' illness, retirement, or death; Dekimpe & Morrison, 1991).

Investigate relationships among factors and underlying dynamics. Modeling how the different factors relate to one another could provide further insights. Some attributes likely have a tendency to co-occur, which could be accounted for by a different empirical design. Including mediation effects could be another avenue for further research.

Moreover, while several key aspects in this research domain are inherently dynamic, we could not incorporate them into our empirical design. With information about specific closure dates, an information we are lacking in our dataset, researchers could devise a hazard model. Store attributes also can be gauged in a dynamic way, such as by incorporating continuously evolving technological features and changes in the competitive retail environment.

Look ahead. This study used data from the past about stores that closed when omnichannel retailing gained ascendency to learn about the future. However, the digital transformation of the retailscape is still ongoing, and new developments might change the relative importance of factors or require new capabilities. New research could thereby not only address the fate of existing store concepts but explore the rise of new store formats and reinventions of the retail system. This study provides first insights into a topic that is constantly in flux, requiring future research to keep up with this ever-changing environment.

Acknowledgment & financial disclosure

The authors thank Heiner Evanschitzky, Richard Gretz, and Werner Reinartz for their constructive inputs. They also thank Paulina Maria Partz for her help in collecting parts of the data and her contributions to the theoretical considerations as well as (in alphabetical order) Ronny Behrens, Lucas Maria Blatz, Ananth Kirupananthan, Saskia Kuhn, Tobias Mayerhofer, and Pauline Röhr for further support with the data collection. They further thank Leah Dieterich for her support in revising the manuscript.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.jretai.2024.07.001.

Appendix

Multi-item scales and measures used in the main study.

Factor	Attribute	Scale items/measures	α	Items based on
Product selection				
Assortment size	Size of assortment	The assortment size of ... satisfies a majority of my shopping needs in the product category. ... offers a broad choice of products in the product category. ... carries a wide selection of products in the product category that I can choose from.	.918	Srinivasan et al. (2002)
Assortment uniqueness	Uniqueness of assortment	... has products and brands I can't easily find in other stores. ... features products and brands that are hard to find anywhere else. A large part of products and brands by ... are unique (and are not offered by another retailer).	.843	Wolfinbarger and Gilly (2003)
Assortment quality	Quality of assortment	... offers products of good quality. The quality of products at ... is very high. At ..., I get products of highest value.	.904	Grewal et al. (1998); Stephenson (1969)
Price	Favorable price	... has very low prices. The overall price level of ... is low.	.900	Srivastava and Lurie (2004)
	Price performance	... has a good value-for-money ratio. For products offered by ... the prices are adequate, given the quality of the merchandise.		Mathwick et al. (2001)
Own brands		The retailer offers mostly products of other brands (1) or private labels (7), capturing the "own brand" variable.	n.a.	
Store focus		Compared with an average Karstadt department store, the assortment of [chosen store] is concentrated on one trade group (1)/comprises many different trade groups (7).	n.a.	
Product category		0 if apparel; 1 if media.		
Store environment				
Location accessibility	Accessibility of location	I can get to ... with minimal effort. It is easy to reach ... I am able to get to the ...'s location quickly.	.971	Berry et al. (2002)
Environment	Environment of store	I think the environment of the ... store is excellent. ... is located in an attractive shopping area in which spending time is fun (e.g., vibrant shopping street). I like the surrounding area of the store.	.963	Dagger and Danaher (2014)
City center		1 if store is located within the city center; 0 otherwise.	n.a.	
Store size		Compared with an average Karstadt department store, [chosen store] is much smaller (1)/much larger (7).	n.a.	
Size of population		Number of people living in the relevant district of the store in 2015.	n.a.	
ΔSize of population		Difference of number of people living in the relevant district of the store between 2020 and 2015.	n.a.	
Income of population		Mean income of people living in the relevant district of the store in 2015.	n.a.	
ΔIncome of population		Difference of mean income of people living in the relevant district of the store between 2020 and 2015.	n.a.	
Price for building land		Mean price for building land in the relevant district of the store in 2015.	n.a.	
ΔPrice for building land		Difference of mean price for building land in the relevant district of the store between 2020 and 2015.	n.a.	
GDP		Local gross domestic product of the relevant district of the store in 2015.	n.a.	
ΔGDP		Difference of local gross domestic product of the relevant district of the store between 2020 and 2015.	n.a.	

(*continued on next page*)

(*continued*)

Factor	Attribute	Scale items/measures	α	Items based on
Experience				
Atmosphere	Experiential servicescape	Shopping at ... is pure enjoyment. Shopping at ... is a great experience.	.922	Mathwick et al. (2001)
	Aesthetic servicescape	The store of ... is aesthetically appealing. The store design of ... is attractive.		Mathwick et al. (2001)
Product testing	Product testing	At ... I have full information at hand, enabling me to get a good impression about relevant products prior to purchase. At ... I get in-depth information about the available products. At ... I can easily determine prior to shopping whether I like the product.	.942	Seiders et al. (2005); Wolfinbarger and Gilly (2003)
Frictionless				
Convenience	Transaction convenience	At ..., I am able to complete my purchases quickly. At ..., I can conclude my transaction quickly if I want to.	.832	Seiders et al. (2005)
	Benefit convenience	At ..., I can get the products faster than at other stores. The time required to receive the products at ... is appropriate.		Berry et al. (2002)
Time availability	Time availability	... offers convenient hours of operation. ... offers very long store hours. ... offers the most convenient store hours for me.	.909	Sirohi et al. (1998)
Multichannel option		1 if store offers digital channels to purchase; 0 otherwise.	n.a.	
Retail chain		1 if store is part of a retail chain; 0 otherwise.	n.a.	
Social and responsible				
Service	Selection guide	... makes it easy for me to find a suitable product (e.g., through approachable employees, online chats with vendors, personalized recommendations). ... provides helpful product advice (e.g., through approachable employees, online chats with vendors, personalized recommendations).	.908	Seiders et al. (2005)
	After-sales service	I believe that ... would do anything to resolve any after-purchase problems. I believe that ... offers an excellent after-sales service (e.g., returns, exchanges).		Seiders et al. (2005)
CRM	CRM	... provides real benefits for its loyal customers. Customers of ... are rewarded for their loyalty. ... has a beneficial loyalty program (e.g., in combination with a customer card).	.948	Hsieh et al. (2005); Palmatier et al. (2007)
CSR	Social responsibility	In my opinion, ... appears to support good causes. I believe, ... acts socially/environmentally responsible.	.956	Walsh and Beatty (2007)
	Local community	I think, ...'s support for the local community and environment is good. I believe, ... is very engaged in the local community and environment.		Oppewal et al. (2006)
	Fairness	I think, ... has a strong record on fair labor practices regarding its employees and suppliers. I believe, ... treats its employees and suppliers fairly.		Lichtenstein et al. (2004)

Note: The ellipses mark the place where the name of the respective physical retail store was inserted in the questionnaire.

References

Ailawadi, KL., Pauwels, K., & Steenkamp, J-BE. M. (2008). Private-label use and store loyalty. *Journal of Marketing, 72*(6), 19–30.
Anderson, C. (2006). *The long tail: Why the future of business is selling less of more*. New York: Hyperion.
Aufreiter, N., Leibowitz, J., Dalzell-Payne, P., & Ungermann, K. (2012). *Seven strategies to beat the retail apocalypse*. McKinsey & Company May 12 https://www.mckinsey.com/~/media/mckinsey/dotcom/client_service/Marketing%20and%20Sales/PDFs/McKinsey%20CMSO%20forum%20-%20Seven%20strategies%20to%20beat%20the%20retail%20apocalypse.ashx.
Avery, J., Steenburgh, TJ., Deighton, J., & Caravella, M. (2012). Adding bricks to clicks: Predicting the patterns of cross-channel elasticities over time. *Journal of Marketing, 76*(3), 96–111.
Baker, J., Grewal, D., & Parasuraman, A. (1994). The influence of store environment on quality inferences and store image. *Journal of the Academy of Marketing Science, 22*(4), 328–339.
Baker, J., Parasuraman, A., Grewal, D., & Voss, GB. (2002). The influence of multiple store environment cues on perceived merchandise value and patronage intentions. *Journal of Marketing, 66*(2), 120–141.

Bei, Z., Gielens, K., & Dekimpe, MG. (2018). Retail entry and exit. In K Gielens, & E Gijsbrechts (Eds.), *Handbook of research on retailing* (pp. 344–374). Cheltenham: Edward Elgar Publishing.
Bell, DR., & Song, S. (2007). Neighborhood effects and trial on the internet: Evidence from online grocery retailing. *Quantitative Marketing and Economics, 5*, 361–400.
Berry, LL., Seiders, K., & Grewal, D. (2002). Understanding service convenience. *Journal of Marketing, 66*(3), 1–17.
Betancourt, RR., Chocarro, R., Cortinas, M., Elorz, M., & Mugica, JM. (2016). Channel choice in the 21st century: The hidden role of distribution services. *Journal of Interactive Marketing, 33*(1), 1–12.
Blut, M., Teller, C., & Floh, A. (2018). Testing retail marketing-mix effects on patronage: A meta-analysis. *Journal of Retailing, 94*(2), 113–135.
Breugelmans, E., Altenburg, L., Lehmkuhle, F., Krafft, M., Lamey, L., & Roggeveen, AL. (2023). The future of physical stores: Creating reasons for customers to visit. *Journal of Retailing, 99*(4), 532–546.
Brooks, KJ. (2023). *Wall Street says 50,000 retail stores will close in 5 years*. CBS News https://www.cbsnews.com/news/retail-store-closings-prediction-ubs-analyst/.
Brüggen, EC., Foubert, B., & Gremler, DD. (2011). Extreme makeover: Short-and long-term effects of a remodeled servicescape. *Journal of Marketing, 75*(5), 71–87.
Carree, M., & Thurik, R. (1996). Entry and exit in retailing: Incentives, barriers, displacement and replacement. *Review of Industrial Organization, 11*(2), 155–172.
Centre for Retail Research. (2020). *Online: UK, Europe & N. America 2020 estimates* http://www.retailresearch.org/onlineretailing.php.
Churchill, GA. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research, 16*(1), 64–73.
Crosby, LA., Evans, KR., & Cowles, D. (1990). Relationship quality in services selling: An interpersonal influence perspective. *Journal of Marketing, 54*(3), 68–81.
Dagger, TS., & Danaher, PJ. (2014). Comparing the effect of store remodeling on new and existing customers. *Journal of Marketing, 78*(3), 62–80.
De Jong, MG., Steenkamp, J-BE. M., & Veldkamp, BP. (2009). A model for the construction of country-specific yet internationally comparable short-form marketing scales. *Marketing Science, 28*(4), 674–689.
Dekimpe, MG., & Morrison, DG. (1991). A modeling framework for analyzing retail store durations. *Journal of Retailing, 67*(1), 68–92.
Destatis. (2022). *Innenstädte: Stationärer Einzelhandel mit Bekleidung, Büchern, Spielwaren und Elektronik erfährt teils deutliche Umsatzeinbußen gegenüber Vor-Corona-Jahr* https://www.destatis.de/DE/Presse/Pressemitteilungen/2022/11/PD22_N065_45.html.
Elberse, A. (2013). *Blockbusters: Why big hits – and big risks – are the future of the entertainment business*. London: Faber & Faber.
Fertik, M. (2019). *How to avoid being victim to the retail apocalypse*. Forbes https://www.forbes.com/sites/michaelfertik/2019/05/02/how-to-avoid-being-victim-to-the-retail-apocalypse/.
Firth, D. (1993). Bias reduction of maximum likelihood estimates. *Biometrika, 80*(1), 27–38.
Gao, F., Agrawal, VV., & Cui, S. (2022). The effect of multichannel and omnichannel retailing on physical stores. *Management Science, 68*(2), 809–826.
Grewal, D., Baker, J., Levy, M., & Voss, GB. (2003). The effects of wait expectations and store atmosphere evaluations on patronage intentions in service-intensive retail stores. *Journal of Retailing, 79*(4), 259–268.
Grewal, D., Breugelmans, E., Gauri, D., & Gielens, K. (2023). Re-imagining the physical store. *Journal of Retailing, 99*(4), 481–486.
Grewal, D., Monroe, KB., & Krishnan, R. (1998). The effects of price-comparison advertising on buyers' perceptions of acquisition value, transaction value, and behavioral intentions. *Journal of Marketing, 62*(2), 46–59.
Grewal, D., Noble, SM., Roggeveen, AL., & Nordfalt, J. (2020). The future of in-store technology. *Journal of the Academy of Marketing Science, 48*(1), 96–113.
Guler, A. U. (2018). Inferring the economics of store density from closures: The starbucks case. *Marketing Science, 37*(4), 611–630.
Haans, H., & Gijsbrechts, E. (2010). Sales drops from closing shops: Assessing the impact of store outlet closures on retail chain revenue. *Journal of Marketing Research, 47*(6), 1025–1040.
Hagtvedt, H., & Chandukala, SR. (2023). Immersive retailing: The in-store experience. *Journal of Retailing, 99*(4), 505–517.
Hartmans, A. (2021). *Roughly 80,000 stores are doomed to close in the next 5 years as the retail apocalypse continues to rip through america*. Business Insider https://www.businessinsider.com/retail-apocalypse-means-80000-store-closures-next-5-years-2021-4.
Heinze, G., & Schemper, M. (2002). A solution to the problem of separation in logistic regression. *Statistics in Medicine, 21*(16), 2409–2419.
Hennig-Thurau, T., & Houston, MB. (2019). *Entertainment science: Data analytics and practical theory for movies, games, books, and music*. Cham: Springer Nature.
Hsieh, Yi-C, Chiu, H.-C., & Chiang, M-Yi (2005). Maintaining a committed online customer: A study across search-experience-credence products. *Journal of Retailing, 81*(1), 75–82.
IFH Köln. (2015). *Fast jedes zehnte ladengeschäft von schliessung bedroht – Alle regionen betroffen*. News Release https://www.ifhkoeln.de/fast-jedes-zehnte-ladengeschaeft-von-schliessung-bedroht-alle-regionen-betroffen/ for an English reference; see https://beamberlin.com/the-state-of-inner-city-retail/..
Janda, S., Trocchia, PJ., & Gwinner, KP. (2002). Consumer perceptions of internet retail service quality. *International Journal of Service Industry Management, 13*(5), 412–431.
Jones, C. (2017). *Many restaurant chains still struggling*. USA Today https://eu.usatoday.com/story/money/2017/01/20/many-restaurant-chains-still-strugglng/96840038/.
Kim, E. (2016). *Every big box retailer should be terrified by this one chart*. Business Insider http://www.businessinsider.de/e-commerce-share-of-retail-industry-2016-5?r=US&IR=T.
King, G., & Zeng, L. (2001). Logistic regression in rare events data. *Political Analysis, 9*(2), 137–163.
Klostermann, J., Hinze, T., Völckner, F., Kupfer, A.-K., & Schwerdtfeger, R. (2024). Avengers, assemble! A network-based contingency analysis of spillover effects in multi-brand alliances. *Journal of the Academy of Marketing Science, 52*, 449–469.
Levy, M., Weitz, BA., & Grewal, D. (2019). *Retailing management* (10th ed.). Boston: McGraw-Hill Education.
Lichtenstein, DR., Drumwright, ME., & Braig, BM. (2004). The effect of corporate social responsibility on customer donations to corporate-supported nonprofits. *Journal of Marketing, 68*(4), 16–32.
Mantrala, MK., Levy, M., Kahn, BE., Fox, EJ., Gaidarev, P., Dankworth, B., & Shah, D. (2009). Why is assortment planning so difficult for retailers? a framework and research agenda. *Journal of Retailing, 85*(1), 71–83.
Mathwick, C., Malhotra, N., & Rigdon, E. (2001). Experiential value: Conceptualization, measurement and application in the catalog and internet shopping environment. *Journal of Retailing, 77*(1), 39–56.
Mayadunne, S., Johar, M., & Saydam, C. (2018). Competitive store closing during an economic downturn. *International Journal of Production Economics, 199*, 162–178.
Meisenzahl, M. (2021). *Nearly 3000 stores are closing in 2021 as the retail apocalypse drags on. Here's the full list*. Business Insider https://www.businessinsider.com/stores-closing-in-2021-list-2021-3.
Neslin, SA. (2022). The omnichannel continuum: Integrating online and offline channels along the customer journey. *Journal of Retailing, 98*(1), 111–132.
Oppewal, H., Alexander, A., & Sullivan, P. (2006). Consumer perceptions of corporate social responsibility in town shopping centres and their influence on shopping evaluations. *Journal of Retailing and Consumer Services, 13*(4), 261–274.
Palmatier, RW., Scheer, LK., Houston, MB., Evans, KR., & Gopalakrishna, S. (2007). Use of relationship marketing programs in building customer-salesperson and customer-firm relationships: Differential influences on financial outcomes. *International Journal of Research in Marketing, 24*(3), 210–223.
Pan, Y., & Zinkhan, GM. (2006). Determinants of retail patronage: A meta-analytical perspective. *Journal of Retailing, 82*(3), 229–243.
Reidenbach, R. E, & Robin, DP. (1990). Toward the development of a multidimensional scale for improving evaluations of business ethics. *Journal of Business Ethics, 9*(8), 639–653.

Reinartz, W., Wiegand, N., & Imschloss, M. (2019). The impact of digital transformation on the retailing value chain. *International Journal of Research in Marketing, 36*(3), 350–366.
Seiders, K., Voss, GB., Grewal, D., & Godfrey, AL. (2005). Do satisfied customers buy more? examining moderating influences in a retailing context. *Journal of Marketing, 69*(4), 26–43.
Shankar, V., Kalyanam, K., Setia, P., Golmohammadi, A., Tirunillai, S., Douglass, T., et al., (2021). How technology is changing retail. *Journal of Retailing, 97*(1), 13–27.
Shields, M., & Kures, M. (2007). Black out of the blue light: An analysis of kmart store closing decisions. *Journal of Retailing and Consumer Services, 14*(4), 259–268.
Sirohi, N., McLaughlin, EW., & Wittink, DR. (1998). A model of consumer perceptions and store loyalty intentions for a supermarket retailer. *Journal of Retailing, 74*(2), 223–245.
Srinivasan, SS., Anderson, R., & Ponnavolu, K. (2002). Customer loyalty in e-commerce: An exploration of its antecedents and consequences. *Journal of Retailing, 78*(1), 41–50.
Srivastava, J., & Lurie, NH. (2004). Price-matching guarantees as signals of low store prices: Survey and experimental evidence. *Journal of Retailing, 80*(2), 117–128.
Star, AD., & Massel, MZ. (1981). Survival rates for retailers. *Journal of Retailing, 57*(2), 87–99.
Stassen, RE., Mittelstaedt, JD., & Mittelstaedt, RA. (1999). Assortment overlap: Its effect on shopping patterns in a retail market when the distributions of prices and goods are known. *Journal of Retailing, 75*(3), 371–386.
Stephenson, P. R (1969). Identifying determinants of retail patronage. *Journal of Marketing, 33*(3), 57–61.
Thompson, D. (2018). *How Manhattan became a rich ghost town: New York's empty storefronts are a dark omen for the future of cities*. The Atlantic https://www.theatlantic.com/ideas/archive/2018/10/new-york-retail-vacancy/572911/.
Tordjman, K. L., Evans, P., & Bedraoui, HEl (2021). *Retail apocalypse: Four ways physical stores can survive*. BCG Henderson Institute https://www.bcg.com/publications/2021/how-physical-stores-can-survive.
U.S. Census Bureau. (2021). *U.S. census bureau news, quarterly retail E-commerce sales, 1st quarter 2019* https://www.census.gov/retail/mrts/www/data/pdf/ec_current.pdf.
Van Heerde, HJ., Moorman, C., Moreau, C. P, & Palmatier, RW. (2021). Reality check: Infusing ecological value into academic marketing research. *Journal of Marketing, 85*(2), 1–13.
Walsh, G., & Beatty, SE. (2007). Customer-based corporate reputation of a service firm: Scale development and validation. *Journal of the Academy of Marketing Science, 35*(1), 127–143.
Warren, JL., & Gordon-Larsen, P. (2018). Factors associated with supermarket and convenience store closure: A discrete time spatial survival modelling approach. *Journal of the Royal Statistical Society: Series A: Statistics in Society, 181*(3), 783–802.
Wichmann, JR. K., Scholdra, TP., & Reinartz, WJ. (2021). What drives inner city attractiveness for society? The role of brick-and-mortar stores. In V. Kumar, & DW. Stewart (Eds.), *Marketing accountability for marketing and non-marketing outcomes (Review of marketing research): 18* (pp. 279–317). Bingley: Emerald.
Wolfinbarger, M., & Gilly, MC. (2003). eTailQ: Dimensionalizing, measuring, and predicting eTail quality. *Journal of Retailing, 79*(3), 183–198.
Wood, Z., & Allen, K. (2016). *Where have all britain's shoppers gone?*. The Guardian https://www.theguardian.com/business/2016/apr/23/uk-high-street-spending-shoppers-slowdown.
Yoo, C., Park, J., & MacInnis, DJ. (1998). Effects of store characteristics and in-store emotional experiences on store attitude. *Journal of Business Research, 42*(3), 253–263.
Zhang, JZ., Chang, C.-W., & Neslin, SA. (2022). How physical stores enhance customer value: The importance of product inspection depth. *Journal of Marketing, 86*(2), 166–185.