Accessibility and Availability:
A Cross-Cultural Study of Shopper Responses to Online Retail Stock-Outs

Abstract

While accessibility of products in online retail is an expected part of the shopper experience, all too frequently products are not available due to stock-outs. A study of shopper responses to stock-outs across five countries is examined using the Sheth and Sisodia (2012) 4A's framework. The findings demonstrate how marketing investments can fail when the final 4A's stage, Accessibility, is not adequately addressed in online retailing. A survey of more than 2,000 shoppers across five European and Asian countries that encountered a non-available item while shopping online for one of six fast-moving consumer goods categories demonstrates the similarities and differences of shopper reactions to online stock-outs across cultures. It examines a variety of variables that impact behavior, whether it be to switch stores, switch brands, or switch intentions. While switching behavior was found to vary greatly across cultures, it varied less across categories, and in all countries, switching was greatly affected by the way shoppers encountered the non-available item. The study concludes with recommendations to management to address product availability.

Journal of Global Scholars in Marketing
Edited by Atul Parvatiyar
Special Issue Commerating the Research of Jagdish Sheth
Submitted June 20, 2019
Revision April 28, 2021

This research was funded by a grant from the Procter & Gamble Company

Keywords: 4A's, Accessibility, online retail, out-of-stocks, stock-outs, cross-cultural, fast-moving consumer goods, availability, shopper responses, customer experience, transaction costs, substitution costs

Accessibility and Availability:
A Cross-Cultural Study of Shopper Responses to Online Retail Stock-Outs

Introduction

Research on availability in the fast-moving consumer goods product categories in online retail has shown that in this growing shopping channel, shoppers all too often do not find the desired item they seek at the online retailer where they planned to purchase. In fact, item non-availability in online shopping averages about 20 percent across six categories in the six countries examined by Corsten and Gruen (2018). This article examines shopper switching behavior when the item they intended to purchase when shopping online. Where previous research has examined this behavior in retail store environments (see Aastrup & Kotzab 2010 for a summary), and others have examined this in online environments using experimental conditions (Kim & Lennon, 2011; Kumar et al. 2021; Pizzi & Scarpi, 2013), our study examines actual shoppers across multiple cultures.

The importance of examining stock-outs is demonstrated by Sheth and Sisodia's (2012) 4A's framework. The 4A's framework posits that success in any marketing program depends on four dimensions: Awareness, Acceptability, Affordability, and Accessibility. These are non-compensatory, in that a marketer cannot make up for severe shortcoming in one dimension by increasing emphasis on another. To fail, a company only needs to fail on one dimension, even if it performs well on all others (Sheth & Sisodia, 2012, p. 32). The sequencing of the 4A's denotes a process that requires Awareness before Acceptability and Affordability, and then followed by Accessibility (Sheth & Sisodia, 2012, p. 35). Thus, once the offering has been successfully created to meet the customer's performance criteria, has made it affordable, and has successfully communicated this to the customer, all of this marketing resource investment will fail if the offering is not available to the customer.

From the 4A's perspective, the marketing investments of online retailers and the consumer goods manufacturers, which successfully attract shoppers to purchase online, are thwarted when the desired item is not available to the shopper. When this occurs, depending on the shopper's switching behavior, either the manufacturer or the online retailer or both will tend to suffer negative consequences (see Table 1). And in all cases, the shopper always incurs increased transaction costs either due to the additional time and effort required to obtain the desired item, or through time and mental processing costs of substituting a different item for the desired item.

The 4A's Accessibility component has two dimensions: availability and convenience (Sheth & Sisodia, 2012, p. 32). They state (p. 114), "The notion behind Accessibility is really very simple:

ensure your product or service 'meets up' with the customer, at the time and place of the customer's choosing." Online retail has done much to bring consumer goods to the customer, freeing the customer from time and place constraints to purchase and acquire these goods. While online retail enhances the convenience dimension of Accessibility, the availability dimension often fails the shopper.

Recent research in grocery retail continues to show that having the specific items in stock to be the second most important factor when grocery shopping, and that having items in stock to be one of the top 5 components of a stress-free shopping experience (Corsten & Gruen, 2018). Thus, having items in stock is a key component of the convenience and lower stress aspects of online shopping. Having items reliably in stock builds and maintains the trust relationship with the consumer (Sheth & Parvatiyar, 1995). Alternatively, non-availability attenuates the value and the relationship the brands and retailers have invested heavily to build (Ehrenthal et al., 2014).

Given the costs and opportunities associated with Accessibility, it is crucial to examine the interplay of availability and shopper switching behavior when consumers encounter a non-available item they wish to purchase. To reach this stage, the customer has already completed a journey through three of the 4A's (Awareness, Acceptability, and Affordability), and the shopper has decided to make the purchase. Management's failure to deliver on Accessibility interrupts the shopper from purchasing the item – at least temporarily -- resulting in sales and related losses and leads to some sort of switching behavior (see Table 1),

Table 1

Shopper Switching Responses to Online Non-Availability and the Impact to Retailers and Brands

1. Switch to a different online store – retailer loses sale
2. Switch to a different brand – brand loses sale
3. Switch to a variant of the same brand – neither lose sale

4a. Switch retail channel to Brick & Mortar of same retailer – neither lose sale
4b. Switch retail channel to Brick & Mortar of different retailer – retailer loses sale
5a. Switch intention to buy now, delay purchase – opportunity loss for both
5b. Switch intention to buy now, cancel purchase – both lose sale

Note. The shopper always loses due to increased transaction and/or substitution costs, and both retailers and brands risk loss of customer satisfaction and loyalty in all cases.

Background and Context of Availability in Consumer Goods Retail

Availability in Consumer Goods Retail

Availability in traditional bricks & mortar retail has been a regular topic of interest to academic researchers, retailer managers, and brand managers. In consumer goods categories in retail contexts, shopper behavior in out-of-stock situations has been heavily researched (e.g., Aastrup & Kotzab, 2010; Campo et al., 2000; Emmelhainz et al., 1991; Fitzsimmons, 2000; Gruen et al., 2002; Gruen & Corsten 2007; Sloot et al., 2005; Verhoef & Sloot 2010). However, non-availability in online retailing, has received limited research attention and is less well understood (for exceptions, see Breugelmans et al., 2006; Campo & Breugelmans, 2015; Huang & Zhang, 2015; Jing & Lewis, 2011; Kim & Lennon, 2011; Kumar et al., 2021). Non-availability in online shopping differs from out-of-stocks in bricks & mortar retail shopping in that the interface is not with the actual item but with a visual representation of the item. Moreover, online retailers are not limited by spaces and can place their entire product line, whereas this is limited in physical stores (Kim & Lennon 2011). The cost to search other online stores for the exact item is low, while search within the category can be more difficult due to limited ability to view the entire online "shelf" for alternatives, particularly when using a mobile device.

While overall online shopping has grown over the past 20 years, online shopping in the consumer goods categories has grown substantially only in the past few years, as major online retailers (e.g., Amazon.com, JD.com, Alibaba) and major multi-channel retailers (e.g., Walmart, Target, Tesco, etc.) have been ramping up their capabilities in this arena. With these new, multichannel options available to shoppers, research interest in understanding online shopping has been growing, although less scholarly attention has been paid to this aspect relative to other marketing issues (Kim & Lennon 2011).

To explore online shoppers' switching behavior when the desired item is not available, we studied major online retailer websites to observe how these companies presented information regarding availability and non-availability of products. We also met with managers working with online shopping from both the brand/manufacturing side and the retailing side. From this information, we selected six major consumer goods categories, developed an online survey, and worked with a data collection partner to obtain survey data of switching behavior from 2,159 online shoppers across five countries (France, Germany, UK, Japan, and China) who encountered the item they wanted to purchase being unavailable. We examined differences in switching behavior based on various product, store, situation, and shopper/consumer characteristics (Campo et al., 2000; Sloot et al., 2005). Finally, combining estimates extent of non-availability and the level

of switching behaviors, we estimated how sales losses due to shopper switching can be attributed to retailers, brands/manufacturers, or both, following the method of attribution described by Gruen, et al. (2002).

We examine shopper *switching* behavior as the focal variable from several perspectives. First, overall, how do shoppers respond to non-availability, and how do these switching behaviors vary across countries and categories? Next, extending the experimental work of Breugelmans et al. (2006) and Pizzi & Scarpi (2013), we examine how switching behavior varies across two different ways customers encounter non-availability (stated out-of-stock vs. not finding the item)? Finally, we examine how shoppers respond based on their perceived their switching costs (transaction costs and substitution costs). When encountering a non-available item, the shopper must weigh the cost of switching stores (either online store or channel) against the cost of substituting a different item (Corstjens and Corstjens 1995). This study extends the research of these costs in brick & mortar retail (Campo et al. 2000; Campo & Gijsbrechts, 2005; Gruen et al. 2002), into the realm of online shopping.

How shoppers respond to non-availability – variations in switching behaviors

Setting the baseline – Overall Categories of Switching Behaviors

While the switching options of online shoppers are similar to those of retail store shoppers, there are some important differences. First, online shoppers can quickly search to find their desired item at a different online store. Given the low cost of online search, one would expect this to occur more frequently online than in traditional retail (Breugelmans et al. 2006). Second, shoppers can substitute a brand variant of the desired item, such as a different size or form, from the same online store. Third, shoppers can substitute a different brand while shopping at the same online store (Aastrup & Kotzab, 2010). Fourth, shoppers can switch channels, and look to purchase the desired item in a retail store, either one affiliated with the online store, or a different retailer (Corsten & Gruen, 2018). Fifth, shoppers can decide to delay their purchase intention (Aastrup & Kotzab, 2010). Because the online store may include information as to when the item will be available, this may be a more frequent response to non-availability than in retail stores, as shoppers can assess their personal inventory of the item when making a repeat purchase. Often a delay of purchase intention will turn into a purchase cancellation, either through change in need or missed consumption (Gruen et al. 2002). For example, some products are consumed based on availability (e.g., many food items such as ice cream), and a delayed purchase will naturally include the loss of consumption. Other product categories (e.g., diapers or laundry detergent) have scheduled usage.

While the switching options to non-availability online and encountering an out-of-stock in a retail store are similar, the switching behavior is likely to be different. Savvy online retailers can make alternative product suggestions to non-available items, either to save the online sale or to purposely direct the shopper to a higher margin item or brand. The shopper's view of the "shelf" of the online store is much more limited than that of the retail store where the shopper can more readily scan substitute items within the category. Side-by-side comparisons can also be more difficult to make online than in the retail store, because the comparison online is limited to information about the product, and the shopper is not exposed to alternatives of the physical product.

In summary, there are many ways that non-availability of the desired item can differ from that of brick & mortar retail stores. This suggests that switching behavior could also be different. Therefore, we look at how the switching behaviors in online retail are distributed among the five primary switching options outlined above, and we look at factors that would affect these difference in switching behavior.

Switching by Country and Category

Across the five countries examined in this study, when encountering non-availability online (NOLA), there are several reasons online shoppers switching behavior is likely to vary. Some of these include the online retail structure in the country, overall brand loyalty within the country, the overall maturity of the online channel, shoppers' experience with the online channel, and overall shoppers' confidence in the "restocking capability" of the online channel.

The number of dominant online retail options vary across countries. When online shoppers have a choice of multiple, reliable online retailers, they will be more likely to switch stores to find the item they prefer. But when their retail choices are limited, they will likely seek an alternative on their preferred retailer (Campo et al., 2000). Culturally, shopper brand loyalty can vary. For example, China is known for strong brand loyalty, while European countries – with their long history of strong private brand options – tend to be less brand loyal.

Research Question 1: Switching due to NOLA will vary significantly across countries.

Switching behavior may also vary due to category effects (Gruen et al, 2002). The perceived substitution costs of switching brands can vary greatly among categories, with products viewed as more personal (e.g., hair care) to be less substitutable than those less personal (e.g., fabric care). Shoppers may also perceive differences in transaction costs among categories, such as those that are bulky, those where consumption can be adjusted over the short run, or those that can be easily

purchased in easy to access brick & mortar locations. These all can impact switching among categories.

Research Question 2: Switching due to NOLA will vary significantly across categories.

Switching by NOLA Encounter Type

Online retailers have the option to transparently present NOLA as being unavailable or "out of stock." This is similar to a shopper in a retail store finding an empty spot with a shelf-tag but no corresponding product available. The second option is for the online retailer to mask the NOLA by removing the product page so that the shopper cannot find the specific item they want on the web or mobile site. Retailers often remove product pages when the item is not available, rather than state that the item is out of stock. Either way the shopper encounters the NOLA, there is a gap between the actual customer experience and the expected experience, but the response is likely to be different. In the former case, the shopper is certain that the desired item is out-of-stock. In the latter case, the shopper may be uncertain about the status of the item.

Previous research has examined differences in the ways that customers are provided the reason for an out-of-stock. Most of this focuses on the attribution of the out-of-stock, being store-related (e.g., improper ordering), or demand related where customers purchased more than expected (Kumar et al. 2021; Peterson et al., 2020). Pizzi & Scarpi (2013) examine both the timing when the reason is provided as well as the attribution of the cause. Our research extends this understanding by testing it with actual customers (vs. hypothetical situations), and by looking at whether the information provided is transparent or cloaked.

When the item is transparently stated to be out-of-stock, the shopper may search for substitutable items at the same online retailer. Also, given the information that the item is still sold at the online retailer but currently unavailable, they may be more likely to delay their purchase and less likely to switch to another channel (knowing they will likely be able to get it later). However, if the item is not displayed (and cannot be found), the shopper has less information about the item, may seek to find the item's availability on a different online retailer's web site, and therefore be less likely to seek a substitute on the online retailers' web site. Also, with less certainty about the item's eventual availability on the web site, the shopper may be more likely to seek it at another channel rather than delaying their purchase. Because the shopper will likely perceive the issue of the encounter to be with the online retailer and not with the brand, we do not anticipate any difference in brand substitution.

Research Question 3: When an item's NOLA status is presented transparently (stated out of stock) vs. when a NOLA item's product page is removed, shoppers are:

a. less likely to switch online retailers,

b. more likely to switch to a brand substitute (variant),

c. less likely to switch channels,

d. more likely to switch intentions

Switching by Substitution Costs and Transaction Costs

Among the various costs incurred by shoppers when encountering a NOLA, two of the key costs are substitution costs and transactions costs (Campo et al., 2000; Campo & Gijsbrechts, 2005; Corstjens & Corstjens, 1995; Gruen et al., 2002). Using economic cost theory, Campo et al. (2000), define the substitution cost as the decreased utility of a less-preferred alternative, and the transaction cost as the time and effort required to obtain the preferred item. Perceived substitution costs increase as the shopper's willingness to substitute a different item for the desired item increases. Higher substitution costs lead to online store switching and channel switching as the shopper seeks the desired item, while low substitution costs lead to brand switching. Transaction costs increase as the shopper perceives difficulty in an alternative transaction. Higher perceived transaction costs lead to item substitution while lower transaction costs lead to store and channel switching. Thus, substitution and transaction costs work in opposite directions (Corstjens & Corstjens, 1995).

Research Question 4: As shoppers' perceived substitution costs increase, shoppers are:

a. more likely to switch online retailers,

b. less likely to switch brands,

c. less likely to substitute brand variants,

d. more likely to switch channels,

e. more likely to switch intentions

Research Question 5: As shoppers' perceived transaction costs increase, shoppers are:

a. less likely to switch online retailers,

b. more likely to switch brands,

c. more likely to substitute brand variants,

d. less likely to switch channels,

e. less likely to switch intentions

Methodology

Data for the study was collected via an online survey where respondents completed a questionnaire via a personal computer or mobile phone. To begin the survey of NOLA in online retail, we selected six large categories that have market-leading brands as well as strong private brands, a large number of stock-keeping units (SKUs), a variety of price points, be amenable to online purchase and delivery, and where shoppers would typically have knowledge and experience. The six categories selected were oral care, laundry/fabric care, baby care/diapers, hair care, shaving, and skin care. For data collection, we partnered with a market research panel agency that polls multi-channel shoppers worldwide on a quarterly basis. They have extensive experience in language translation and data collection in our countries of interest: China, Japan, Germany, France, and the UK. The quarterly survey examines panelists' online retail purchase history, and thus we were able to pre-qualify panelists who met our criteria of previous online purchases in one of the targeted categories. Our survey was run separately from the panel company's quarterly data collection, and the survey was translated into the respective language of each country.

From the population of pre-qualified panelists, we set additional screens to further qualify respondents who purchased in one of the target categories in the past 60 days, and who had encountered the item they desired to purchase being unavailable (NOLA) at the online retailer. We set quotas by country to ensure a minimum level of responses by country, but we did not set quotas by category. The total number of respondents was 2,159, and these were distributed across the counties as follows: China (491), France (466), Germany (444), Japan (427), and UK (331). Responses by category were hair care (23 percent), skin care (22 percent), shave (19 percent), oral care (17 percent), fabric care (11 percent), and baby care (8 percent).

The approach to the survey was to follow the shopper's journey through the purchase stage of the online shopping trip, and we designed the questionnaire to follow that path. After verifying that the shopper had indeed encountered a NOLA item and confirmed the category, then the next question asked how the NOLA was encountered (was it transparently listed as unavailable, or was the shopper unable to find the item). Once we established how the NOLA was encountered, we then asked for their ultimate switching behavior, providing the options outlined previously in Table 1.

We then asked shoppers to assess their transaction and substitution costs related to the NOLA item they had desired to purchase. These were asked as single item questions for each cost. While multiple items to assess each cost would be preferred, due to the nature of mobile questionnaires, we were limited in the number of questions we were able to ask. These questions were Likert scaled, and they included, *I don't mind substituting a similar item for the item that wasn't*

available (substitution cost – reverse coded), and *It would take me a lot of effort to get this exact item from another source* (transaction cost).

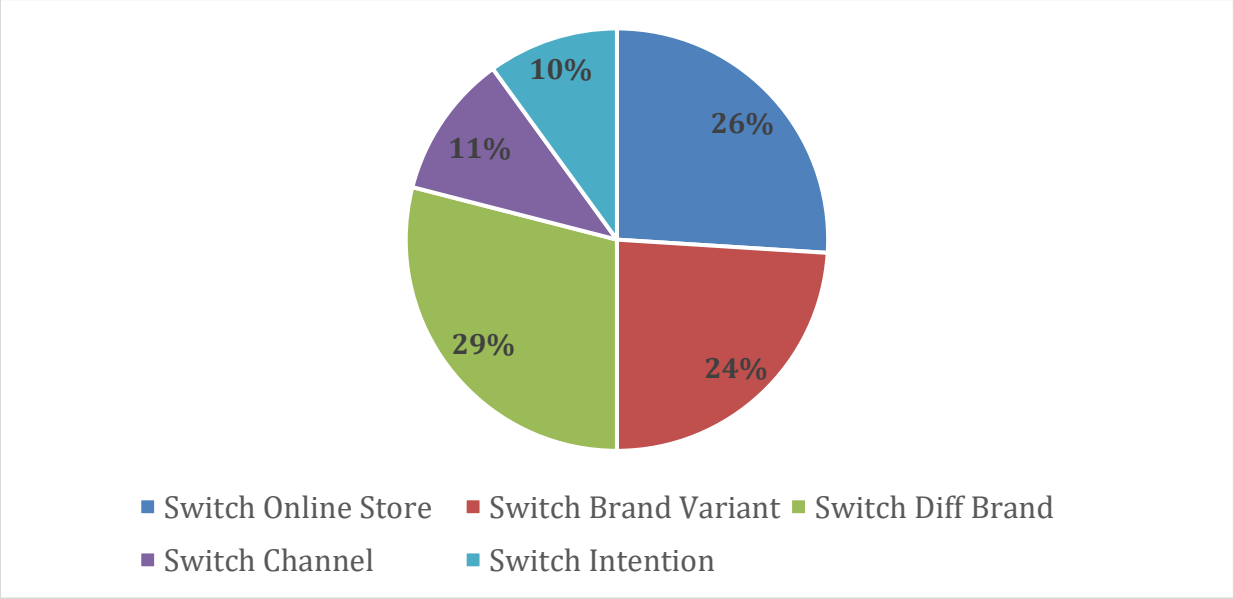
Analysis and Results

Baseline Measurement of Overall Switching Behavior due to NOLA.

Figure 1 shows the distribution of overall switching due to NOLA across all five countries and all six categories. Just over one quarter switched stores, while over half (53.6% combined) switched to a different brand or a brand variant while staying at the same online store. Almost equal numbers indicated that they switched channels or switched their intention to purchase at that time (decided to delay or cancel their purchase).

Figure 1

Overall Switching Due to NOLA



Switching by Country

Table 2 and Figure 2 show the distribution of switching responses across countries. For the crosstab Table 2, the Pearson Chi Square was significant (145.97, df 16, sig. < .001), providing overall support for Research Question 1 that switching behavior varies among countries.

Table 2
Switching by Country - Crosstabulation

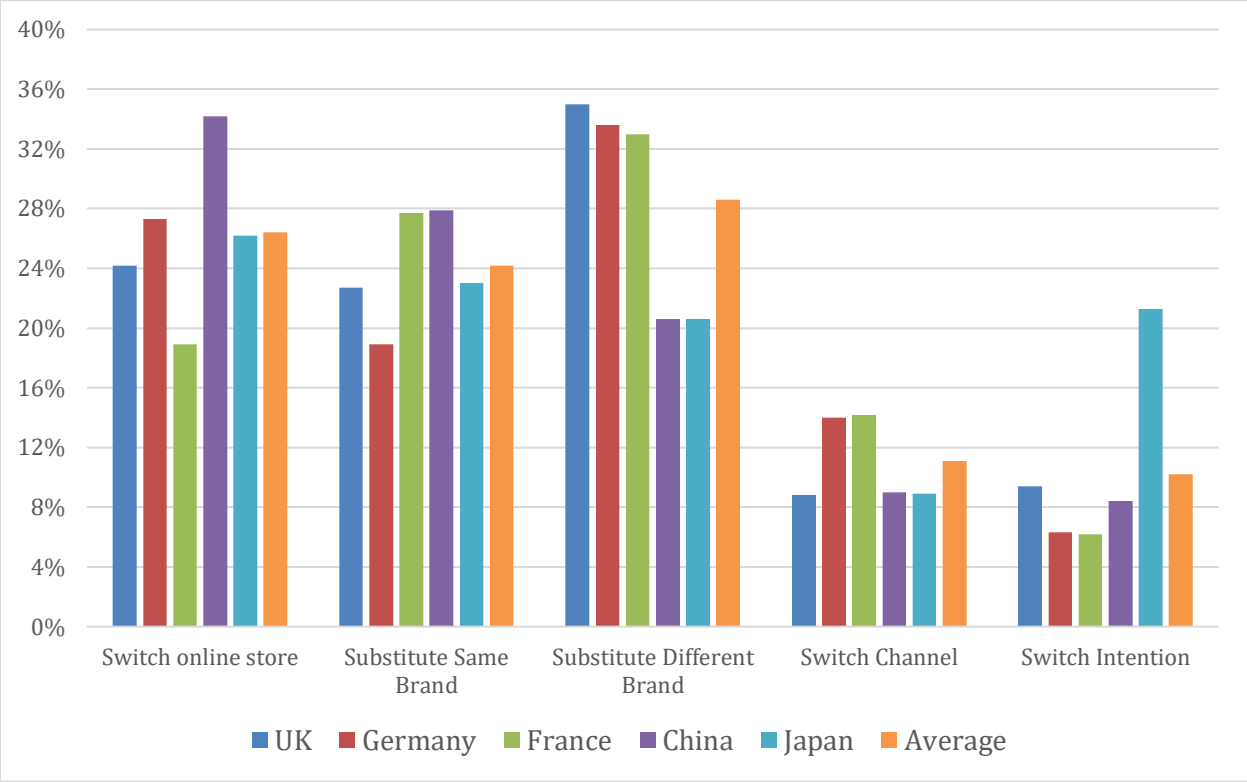
	UK	Germany	France	China	Japan	Average
Switch online store	24%	27%	19%(b)	34%(a)	26%	26%
Substitute Same Brand	23%	19%	28%	28%	23%	24%
Substitute Different Brand	35%(a)	34%(a)	33%(a)	21%(b)	21%(b)	29%
Switch Channel	9%	14%	14%	9%	9%	11%
Switch Intention	9%	6%	6%	8%	21%(a)	10%
Total	100%	100%	100%	100%	100%	100%

Note. a = significantly higher; b = significantly lower; p = .05

While the overall finding that there are statistically significant differences among the countries, the real interest lies in the substantive differences, which are illustrated in Figure 2. Online store switching is most prevalent in China, with over one-third of the shoppers seeking their desired item at a different online store. Alternatively, France is significantly lower, with only 19 percent switching online stores. While further research will be needed to confirm the reason for these differences, Chinese shoppers have multiple online retailers for shopping and fast delivery, while in France online shoppers tend to prefer "click and collect" (rather than delivery), which would require them to go to a different pick-up location when the online store is changed. There are also large differences between the three European countries and the two Asian countries regarding brand switching, indicating lower brand loyalty among Europeans. Finally, Japan had double the average of willingness to switch intention to immediately purchase, perhaps indicating confidence in their online retailers to be quickly back in stock.

Figure 2

Switching Behavior Due to NOLA by Country



Switching by Category

Table 3 and Figure 3 show the distribution of switching responses across categories. For the crosstab in Table 3, the Pearson Chi Square was significant (35.43, df 20, sig. = .018), providing overall support for Research Question 2 that switching behavior varies among categories. However, this is not as extreme as the differences among the countries, and as Figure 3 shows, there are few substantial differences, even though there are several statistically significant differences.

Table 3

Switching by Category - Crosstabulation

	Baby care	Fabric Care/Laundry	Hair Care	Skin Care	Oral Care	Shaving	Average
Switch online store	27%	21%(b)	26%	29%(a)	25%	28%	26%
Substitute Same Brand	24%	25%	26%	21%(b)	27%	24%	24%
Substitute Different Brand	27%	33%(a)	26%	28%	28%	29%	28%

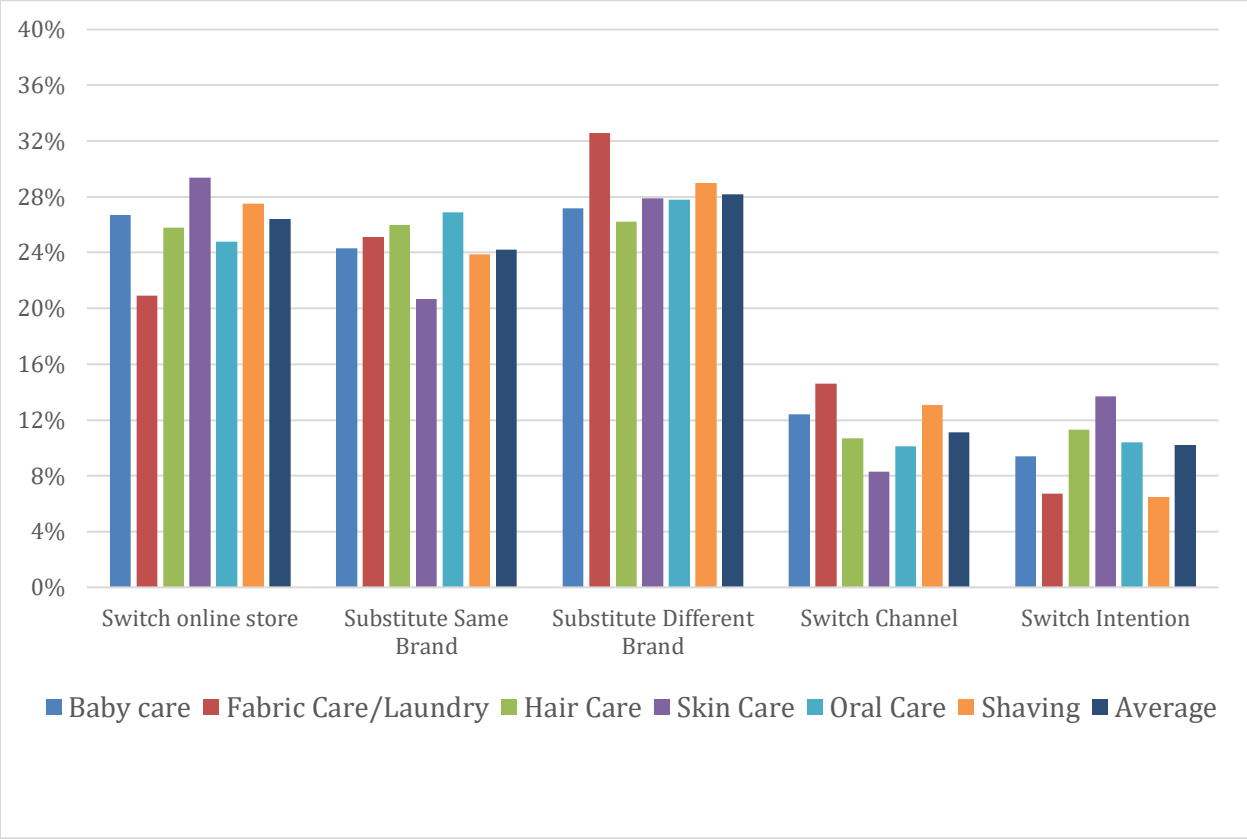
Switch Channel	12%	15%(a)	11%	8%(b)	10%	13%	11%
Switch Intention	9%	7%(b)	11%	14%(a)	10%	7%(b)	10%
Total	100%	100%	100%	100%	100%	100%	100%

Note. a = significantly higher; b = significantly lower; p = .05

The largest significant differences in switching among categories are illustrated in Figure 3 and are generally limited to Fabric Care and Skin Care. Fabric Care shows significantly lower online store switching, higher brand substitution, higher channel switching, and lower intention switching. Skin Care is significantly higher online store switching, lower brand substitution, lower channel switching, and higher intention switching. Shaving also has lower intention switching. Overall, the differences are not substantial, perhaps due to category similarities (all non-perishable, essential, and easily inventoried). However, the differences between Fabric Care (lower online store switching and higher brand switching) and Skin Care (higher online store switching and higher intention switching) suggest that category effects do exist, in support of Research Question 2. Further research into additional categories such as food may show greater differences.

Figure 3

Switching Behavior Due to NOLA by Category



Switching by NOLA Encounter Type

Table 4 and Figure 4 show the distribution of switching responses by NOLA encounter. For the crosstab Table 4, the Pearson Chi Square was significant (60.14, df 4, sig. < .001), providing overall support for Research Question 3 that switching behavior differs between the ways shoppers encounter NOLA items.

Table 4

Switching by Encounter - Crosstabulation

	Stated Out of Stock	Item Not Found	Average[a]
Switch online store	23%(b)	32%(a)	26%
Substitute Same Brand	31%(a)	17%(b)	26%
Substitute Different Brand	26%	28%	26%
Switch Channel	7%(b)	15%(a)	10%

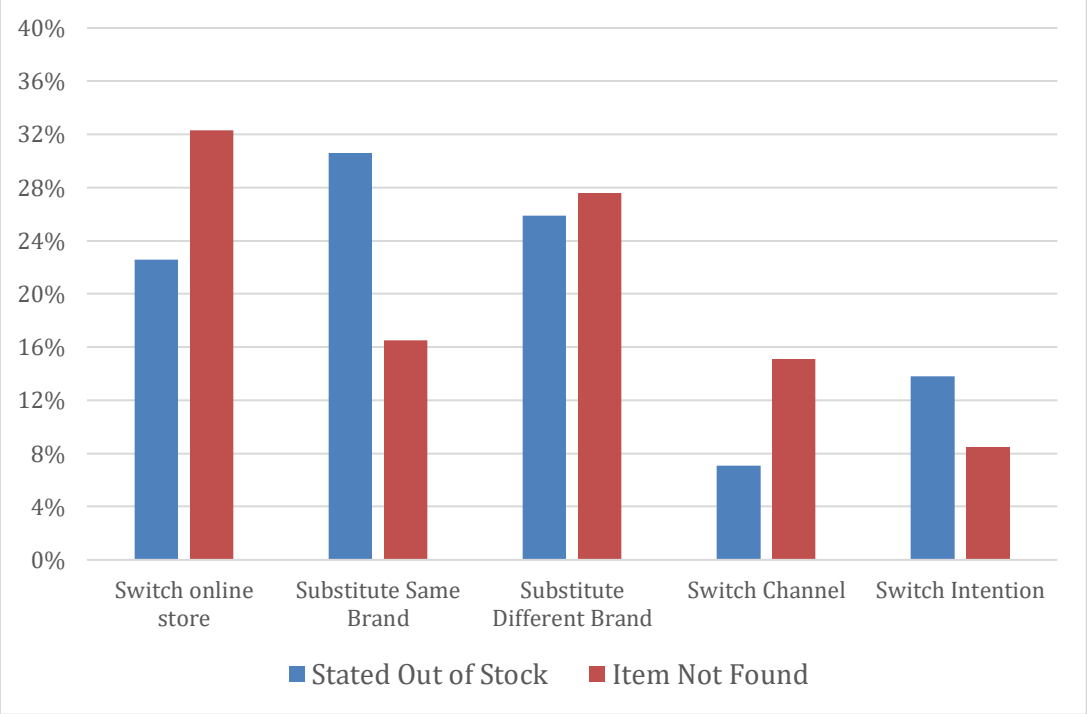
Switch Intention	14%(a)	9%(b)	12%
Total	100%	100%	100%

Note. a = significantly higher; b = significantly lower; p = .05.
[a] Averages vary slightly from overall baseline (Figure 1) due to missing values

As indicated in Table 4 and illustrated in Figure 4, all four expected effects of Research Question 3 are supported. When the online retailer presents the status of the item transparently, stating that it is out of stock, shoppers are less likely to switch to another online store or switch channel, and more likely to substitute a variant of the same brand or switch their intention to purchase immediately. Alternatively, when the retailer does not display the item so it cannot be found, shoppers are more likely to switch online stores or switch channels, and less likely to seek a substitute of the same brand or switch their intention to purchase immediately. Overall, this suggests when online retailers "take down" pages when an item is not available risk losing shoppers to other online retailers or to the brick & mortar channel. Online retailers that transparently show that the item is out of stock have lower shopper loss and find shoppers willing to purchase a variant of the same brand (different size or type) during the existing shopping trip. These findings are consistent with Brugelmans et al. (2006) who demonstrated experimentally that visibility and clarity increased their subjects' willingness to purchase in the category.

Figure 4

Switching Behavior Due to NOLA Encounter



How Substitution costs and Transaction costs Impact Switching Behavior

Table 5 and Figure 5 show the distribution of switching responses by shoppers' perceived substitution costs. For the crosstab in Table 5, the Pearson Chi Square was significant (204.81, df 12, sig. < .001), providing overall support for Research Question 4 that perceived substitution costs affect switching behaviors.

Table 5
Switching Substitution Costs - Crosstabulation

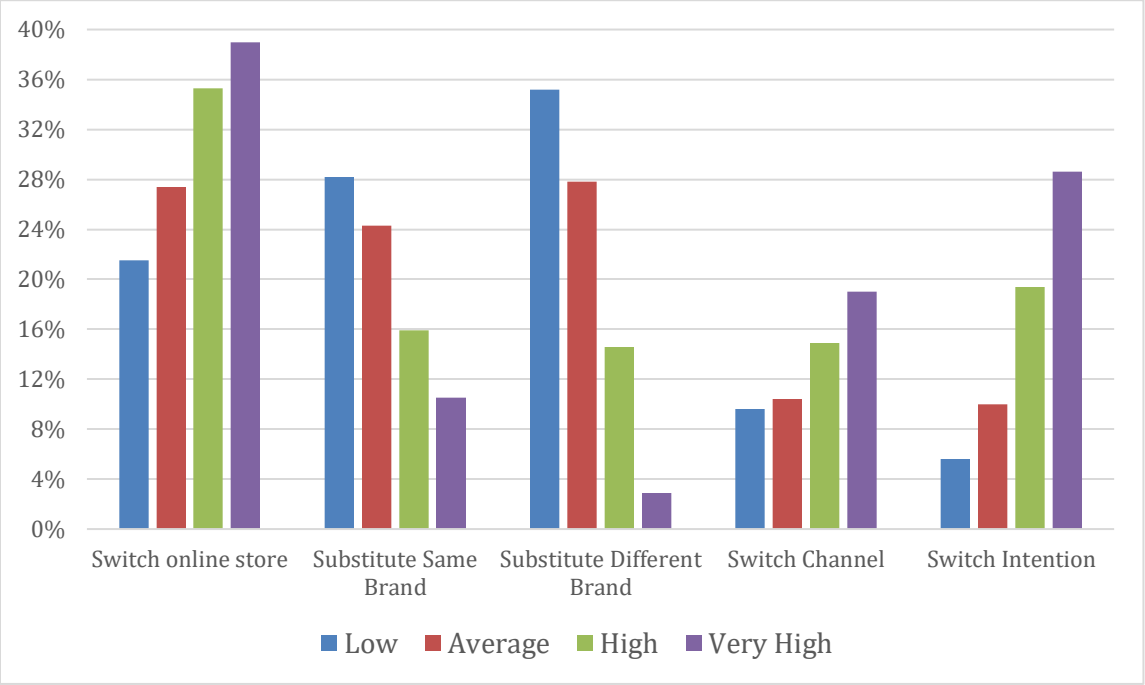
	Low	Average	High	Very High	Average
Switch online store	21%(a)	27%(b)	35%(c)	39%(c)	26%
Substitute Same Brand	28%(a)	24%(a)	16%(b)	11%(b)	24%
Substitute Different Brand	35%(a)	28%(b)	15%(c)	3%(d)	29%
Switch Channel	10%(a)	11%(a)	15%(b)	19%(b)	11%
Switch Intention	6%(a)	10%(b)	19%(c)	29%(d)	10%
Total	100%	100%	100%	100%	100%

Note. Subscript letters (a, b, c, d) denote subsets that differ significantly at the .05 level.

The patterns are as expected with online store switching, channel switching, and intention switching all increasing as substitution costs increase. Alternatively, brand substitution and switching decrease as substitution costs increase. Thus, all five expected effects of Research Question 4 are supported.

Figure 5

Switching Behavior Due to Substitution Costs



While not as dramatic as substitution costs, Table 6 and Figure 6 show the distribution of switching responses by shoppers' perceived transaction costs. For the crosstab table, the Pearson Chi Square was significant (51.97, df 12, sig. < .001), providing overall support for Research Question 5 that perceived transaction costs affect switching behaviors. The overall Chi Square was much lower than for the effect of substitution costs, suggesting that substitution costs may play a greater role in switching than do transaction costs.

Table 6

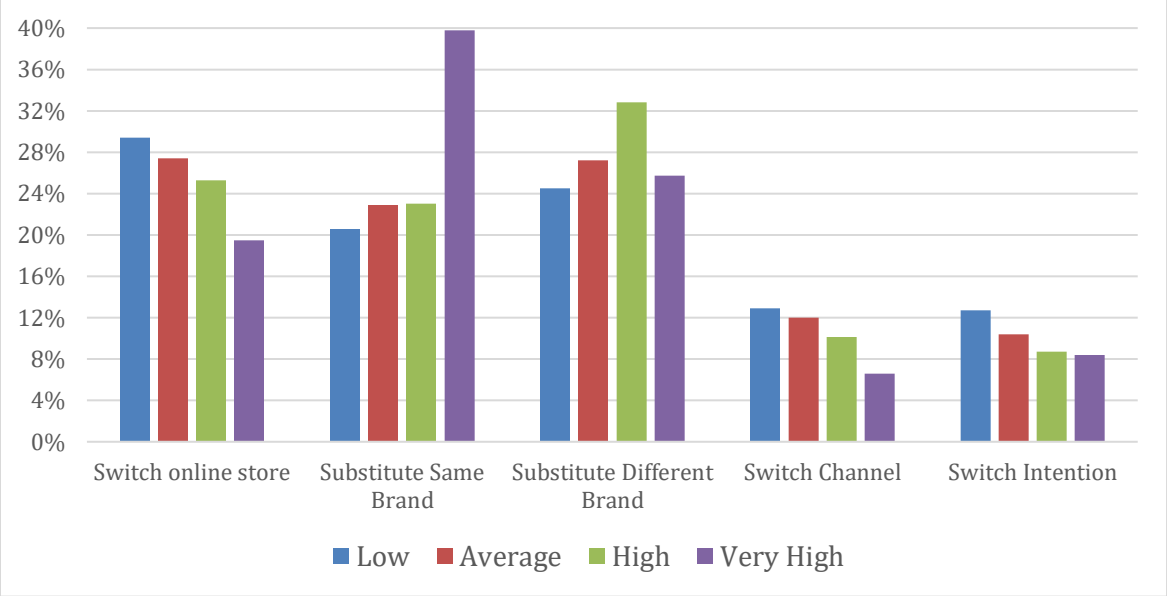
Switching Transaction Costs - Crosstabulation

	Low	Average	High	Very High	Average
Switch online store	29%(a)	27%(a)	25%(a, b)	20%(b)	26%
Substitute Same Brand	21%(a)	23%(a)	23%(a)	40%(b)	24%
Substitute Different Brand	24%(a)	27%(a)	33%(b)	26%(a)	29%
Switch Channel	13%(a)	12%(a)	10%(a, b)	7%(b)	11%
Switch Intention	13%(a)	10%(a, b)	9%(b)	8%(b)	10%
Total	100%	100%	100%	100%	100%

Note. Subscript letters (a, b) denote subsets that differ significantly at the .05 level.

The patterns are as expected with online store switching, channel switching, and intention switching all decreasing along with increasing transaction costs. Alternatively, brand substitution and switching increases as transaction costs increase. Also as expected, the patterns of substitution costs and transaction costs mirror each other and work in opposite directions, consistent with Corstjens & Corstjens (1995).

Figure 6
Switching Behavior Due to Transaction Costs



Discussion

Summary of Findings Regarding Switching

Across all countries and categories, online shoppers who encounter NOLA tend to switch to another online store about one-quarter of the time, purchase a similar product at the same store about half the time, and leave their online shopping trip to either switch channel or come back later about one fourth of the time. After establishing this baseline, the study showed that switching behaviors vary substantially more by country than by category, that the way shoppers encounter NOLA has a large impact on their switching behavior, and that shoppers' perceived substitution and transaction costs play a strong role in their switching decision.

While there are several switching options available to shoppers, those of most interest to brand managers (manufacturers), are when the shoppers switch brands. Retailer managers are most interested when shoppers switch online stores. The switching option that has the least

immediate effect on either entity is the purchase of a variant of the same brand at the same online store. Therefore, from a managerial perspective, a key question addressed in this research is switching behavior that departs from the "same online store - brand variant option." The rationale for prioritizing this focus is that this is of the greatest immediate interest to managers, and any insight regarding this will likely to be used to prioritize resources towards addressing the non-availability dimension of Accessibility.

However, managers should also pay attention to the degree of brand variant switching due to NOLA for two reasons. The first is that the customer is still "settling" for an item that may be less than desired, and the customer still experiences some level of dissatisfaction. The second, as Gruen & Corsten (2007) demonstrate, there is a large cost to both retailers and manufacturers due to sales not being the same as demand. Ordering quantities are typically established based on sales, and demand signals get distorted when shoppers do not purchase their desired item, leading to perpetual mismatches between what retailers have on hand and what customers actually want.

It is also important to keep in mind that the shopper always "loses" when their desired item is not available. The shopper, by definition, encounters costs, which at the minimum includes loss of time, as well as additional mental processing and decision-making, all of which are forms of transaction costs. Accompanying psychological costs include opportunity costs of not having the desired item when needed, as well as substitution costs that include uncertainty of the substitute item's performance relative to the desired item (Campo et al., 2000; Ehrenthal et al., 2014). Further costs to others involved in the shopper's network have also been suggested (Ehrenthal et al., 2014).

Contributions, Findings, and Implications of Findings

This research offers a broad exploration into the switching behavior of a large sample of online shoppers of multiple consumer goods categories across multiple countries. It offers a "live" examination of switching behavior that complements existing research in this domain that has been limited to laboratory experiments and simulations (Breugelmans et al.; 2006; Kim & Lennon, 2011; Kumar et al., 2021; Peterson et al., 2020; Pizzi & Scarpi 2013). As applied to the 4A's context (Sheth and Sisodia 2012), it provides insight into both dimensions of Accessibility, as it examines availability (through NOLA measurement), as well as the importance of convenience (through measurement of substitution and transaction costs).

For both online retail managers and brand managers, it provides understanding of how shopper loyalty and brand loyalty are affected when items are not available. As such, this adds to the understanding of relationship marketing in consumer markets (Sheth & Parvatiyar 1995;

Gruen, 1995). The findings also provide managers baseline information that can help them prioritize approaches to address the negative effects of non-availability and improve Accessibility (Sheth & Sisodia, 2012).

From a relationship marketing perspective, we seek to understand the way that NOLA attenuates the relationship between the consumer/shopper and their chosen online retailer and their desired brand (Sheth & Parvatiyar, 1995; Ehrenthal et al., 2014). To examine the relationship, the first focal question we consider from the perspective of the online retailer asks, "what would cause online shoppers to not purchase an alternative item in their preferred online store?" and the second from the perspective of the brand manager asks, "what would cause online shoppers to switch brands within the same online store?"

Using the 4A's as a building block, this research has focused specifically on Accessibility, and it has provided a strong illustration of the negative effects of neglecting this factor (Sheth & Sisodia, 2012). This article has examined the consumer goods online shopper in the purchase stage of the customer journey when encountering a NOLA. Using the research on consumer goods shoppers in traditional brick & mortar retail as a basis, this study has sought to extend this well-known work into the expanding world of online retail. As such, it extends the work on shopper switching behavior, detailing similarities and differences, and it builds upon this foundation (Campo et al., 2000; Fitzsimmons, 2000; Gruen et al.; 2002; Sloot et al., 2005). The research also extends the experimental work in examining shopper response to out-of-stocks by providing the results of a large sample of online shoppers (Breugelmans et al.; 2006; Huang & Zhang, 2015).

It also established baselines of overall online switching behavior which will be helpful for comparing future research finding as well as for managers to use as benchmarks for measuring the effectiveness of their initiatives when addressing NOLA. It clarifies the types of switching behavior for online retail, introducing the measurement of switching channel to the traditional types examined in brick & mortar retail.

Also, in line with the development of language surrounding the path to purchase (Srinivasan et al., 2016) and the customer journey (Lemon and Verhoef 2016), we introduce the term, "switch intentions" to describe when shoppers delay or cancel purchases. This term is less ambiguous than current terms such as postponement, delay, or cancel, which typically cannot be verified. It is also more useful to managers working with online shoppers, because it clarifies that the shopper had an intention to purchase entering the purchasing stage, but it was switched to a non-purchase intention due to the non- availability of the desired item. This provides a stronger imperative to managers who may assume that the shopper will return later to make the purchase, and not

consider the true cost of NOLA. This term is also useful in the consumer goods world where most purchases are routine or habitual, and the NOLA encounter invokes a deliberate change in habitual behavior.

We also present NOLA as a broader and more encompassing term than "out-of-stock" which is studied in traditional retail. The online retailer does not present the actual product, but only an image and description through an interface. When the interface shows the item to be out of stock, that is one of the two primary ways that the shopper may be prevented from making the purchase they had intended. The other way we identified and described is where the shopper cannot find the item because the online retailer has removed the item from the interface due to lack of item availability, programming error, or user (shopper) error. Extending research in the lab (Brugelmans et al., 2006) into the field, we show how switching behavior changes in actual shopping situations. We believe that additional research will continue to find differences in shoppers' responses based on the way they encounter NOLA, particularly the difference between proactively stated "out-of-stock," as opposed to removing the item's page from the web site. These findings will have important implications for online retail managers who determine the stockout policy of their online stores.

Seeking to extend the theory of perceived transaction and substitution costs, our examination supported the propositions from traditional retail (Campo et al., 2000; Campo & Gijsbrechts, 2005; Ehrenthal et al., 2014). All of the findings were consistent with the expected outcomes. From a research perspective, these costs are derivative of characteristics of the product, situation, store or the shopper, and additional research to further examine these connections will provide fruitful results.

Limitations and Future Research:

While this study provides a broad examination of the switching landscape across multiple countries, additional research can help validate and extend the findings here. The method we used to collect data did not provide the ability to measure the extent of NOLA (percent of the time shoppers encounter NOLA). Having valid estimates of the extent of NOLA will determine the overall priority of the issue to managers, particularly to brand managers where only a small but rapidly growing percentage of their overall sales is through the online channel. The categories examined were all non-food and relatively personal categories dealing some aspect of hygiene. Extensions of this study into other consumer goods categories, including food categories with shorter shelf life and perishability will provide greater generalizability. Other limitations include the sampling procedure, whereby seeking minimum quotas for each country, the sample was not random.

However, we were sampling from a pool of known online shoppers, and thus the responses reflect a general online population experienced in online shopping. Further research may seek to examine those with more and less online shopping experience as an additional variable. Also, our measures for substitution and transaction costs were single item scales, and it will need testing in additional studies to assure reliability.

There are additional factors that can also be included in studies, such as the method of obtaining the purchase (delivery or click-and-collect/store pickup), and how the shopper arrived at the website, via a search engine or direct to the online store. In conclusion, there is a rich area for additional research in the growing area of online retail. In the end, Accessibility is critical. When the shopper encounters non-availability, the customer experience is changed, requring the shopper to change their intended path to purchase.

References

Aastrup, J., & Kotzab, H. (2010). Forty year of out-of-stock research – and the shelves are still empty. *The International Review of Retail, Distribution and Consumer Research, 20*(1), 147-164.

Breugelmans, E., Campo, K., & Gijsbrechts, E. (2006), "Opportunities for Active Stock-out Management in Online Stores: The Impact of the Stock-out Policy on Online Stock-out Reactions," *Journal of Retailing,* 82 (3), 215–28.

Campo, K., Gijsbrechts, E., & Nisol, P. (2000), "Towards Understanding Consumer Response to Stock-outs," *Journal of Retailing,* 76 (2), 219–42.

Campo, K., & Gijsbrechts, E. (2005), "Retail Assortment, Shelf and Stockout Management: Issues, Interplay and Future Challenges, *Applied Stochastic Models in Business and Industry*, 21(4-5), 383-392.

Corsten, D., & Gruen, T. W. (2003). Desperately seeking shelf availability: an examination of the extent, the causes, and the efforts to address retail out-of-stocks. *International Journal of Retail and Distribution Management,* 31(12), 605-617.

Corsten, D., & Gruen, T.W. (2018), *Online Availability: A Worldwide Study of Extent, Shopper Reactions, and Strategies for Non-Food Categories in Digital Retail*, Washington D.C.: Grocery Manufacturers Association.

Corstjens, J., & Corstjens, M. (1995) "Store wars: the battle for mindspace and shelfspace." West Sussex, England: John Wiley & Sons.

Ehrenthal, J.C.F., Gruen, T.W., & Hofstetter, J.S. (2014) "Value attenuation and retail out-of-stocks: A service-dominant logic perspective", *International Journal of Physical Distribution & Logistics Management*, 44(1/2), 39-57.

Emmelhainz, M.A., Stock, J.R., & Emmelhainz, L.W. (1991), "Consumer Responses to Retail Stock-outs," *Journal of Retailing,* 67(2), 138–47.

Fitzsimons, G. J. (2000), "Consumer Response to Stockouts," *Journal of Consumer Research,* 27(2), 249–66.

Gruen, T.W. (1995), "The Outcome Set of Relationship Marketing in Consumer Markets," International Business Review, 4(4), 447-469.

Gruen, T.W., Corsten, D., & Bharadwaj, S. (2002), *Retail Out-of-Stocks: A Worldwide Examination of Extent, Causes and Consumer Responses*. Washington D.C.: Grocery Manufacturers of America.

Gruen, T.W., & Corsten, D. (2007), *A Comprehensive Guide to Retail Out-of-Stock Reduction in the Fast-Moving Consumer Goods Industry*. Washington D.C: Grocery Manufacturers of America.

Huang, Y., & Zhang, Y.C. (2015), The Out-of-Stock (OOS) Effect on Choice Shares of Available Options, *Journal of Retailing,* 92(1) 13-24.

Jing, X., & Lewis, M. (2011), "Stockouts in Online Retailing," *Journal of Marketing Research*, 48(2), 342-354.

Kim, M., & Lennon, S. J. (2011). Consumer response to online apparel stockouts. *Psychology & Marketing*, 28(2), 115-144.

Kumar, M. E., Sharma, D. P., & Tapar, A. V. (2021). Out-of-stock justifications and consumers' behavioral outcomes – exploring the role of product type and sales level information in out-of-stock situations. *Journal of Retailing and Consumer Services, 60*, 1-15, https//doi.org/10.1016/j.retconser.2021.102458.

Lemon, K. N., & Verhoef, P.C. (2016), "Understanding the Customer Experience Throughout the Customer Journey," *Journal of Marketing*, 80(6), 69-96.

Peterson, R. A., Kim, Y., & Jeong, J. (2020) "Out-of-stock, sold out, or unavailable? Framing a product outage in online retail," *Psychology and Marketing, 37*, 428-440.

Pizzi, G., & Scarpi, D. (2013). "When out-of-stock products DO backfire: managing disclosure time and justification wording". *Journal of Retailing, 89*(3), 352-359.

Sheth, J. N., & Sisodia, R.S. (2012), *The 4A's of Marketing: Creating Value for Customers, Companies, and Society*, New York: Routledge.

Sheth, J. N., & Parvatiyar, A. (1995), "Relationship Marketing and Consumer Markets: Antecedents and Consequences," *Journal of the Academy of Marketing Science*, 23(4), 255-271.

Sloot, L. M., Verhoef, P.C., & Franses, P.H. (2005), "The Impact of Brand Equity and the Hedonic Level of Products on Customer Stock-Out Reactions," *Journal of Retailing*, 81(1), 15-34.

Srinivasan, S., Rutz, O., & Pauwels, K. (2016), "Paths to and off Purchase: Quantifying the Impact of Traditional Marketing and Online Consumer Activity", *Journal of the Academy of Marketing Science*, 44, 440-453.

Verhoef, P. C., & Sloot, L.M. (2006), Out of Stock: Reactions, Antecedents, Management Solutions, and a Future Perspective. In M. Krafft & M. K. Mantrala (Eds.), *Retailing in the 21st Century* (pp.239-254). Springer-Verlag.