
Consumer response to the preferred brand out-of-stock situation

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My acid test on the issue [of brand loyalty] is whether a housewife intending to buy Heinz Tomato Ketchup in a store, finding it to be out of stock, will walk out of the store to buy it elsewhere or switch to an alternative product (A.J. O'Reilly, CEO, H.J. Heinz Company).

Introduction

The consumer-products industry has introduced a growing number of brand extensions in the last few years. At the same time, retailers who set out to cut slower-selling brands allowed more shelf space to their private-label brands (Corstjens *et al.* 1994; Weinstein, 1993). Although brand extensions gave rise to a greater variety within brand product lines, it has been argued that consumers now perceive fewer differences between brands (Aaker, 1991; Sloot *et al.*, 1997). In the face of perceived parity between brands by consumers, and perhaps precisely because of the overlapping lines and numerous extensions, manufacturers had to worry whether retailers obtained more freedom to choose which brands to stock and which to delete from their assortment. Ultimately, it is this freedom of choice that enhances retailer power. The purpose of this study was to design an experiment which simulated O'Reilly's acid test of brand loyalty mentioned in the opening quote to this paper. By organizing a true out-of-stock experiment (OOS) of the consumer's preferred brand, we determined whether consumers were willing to "walk out of the store to buy [their preferred brand] elsewhere or switch to an alternative product". Insights into these behaviors might provide arguments that retailers use during negotiations with the manufacturer about shelf allocations.

One would expect many OOS experiments to have been undertaken to date; however, there were only a few OOS studies prior to this current study, from which some insights were gained. For instance, during an OOS experiment, a substantial number of consumers (32 percent) switched brands, but another 14

percent was willing to switch stores (Emmelheinz *et al.*, 1991). Retailers, however, might be interested in more detailed and substantial questions. They might be particularly interested in questions of managerial relevance. One area in which retailers would like to focus is the way that some store loyals respond to OOS situations. They also would like to know whether their competitive conditions, such as having competitor retailers with a similar assortment nearby, can affect OOS responses. The low number of OOS experimental studies has left several questions unanswered. Consider, for instance, the following:

- (1) Is the response to an OOS situation affected by the intensity of retail competition?
- (2) Are the effects of a temporary OOS (where the shelf of the OOS brand is left empty) different from a permanent change (where the shelf of the OOS brand is filled with a competitor's brand) in the assortment?
- (3) Will OOS responses depend on the degree of store loyalty?
- (4) Is the OOS response affected by the shopping patterns of the consumer – whether the consumers spend a large or small amount of money on a typical store visit?
- (5) Will consumers spend less in a store because of an OOS situation, or will the effects of an OOS be confined to the brand and category that are being manipulated?

The present paper addresses these managerial questions. In general, our results show strong differences in OOS responses of brand loyal consumers because of the shopping patterns and the store loyalty that are due to situational effects (temporary versus permanent OOS, intensity of retail competition). We obtained these results from a unique OOS experiment conducted with the full cooperation of the third largest retail grocery chain in The Netherlands. In our experiment the complete product lines (all SKUs) of five leading brands in five different product categories were removed from selected stores of the leading grocery chain and the OOS responses of the brand loyal consumers were studied.

In the following pages we present a further discussion of a preferred-brand-OOS, our hypotheses regarding consumer response to the preferred-brand-OOS situation, the experimental design, the results and conclusions, and some suggestions for further research.

Consumer response to OOS: consequences and moderators

The consumer's response to "out-of-stock" situations has implications for retail assortment, shelf space allotment, pricing, and logistics. In fact, a great number of scientific literature focuses on the optimal assortment of optimizing projects (Rebstein and Gatignon, 1984) or focuses on the costs of OOS situations (Borin *et al.*, 1994; Chang and Niland, 1967; Elton and Mercer, 1969; Ernst and Cohen, 1992; Hill, 1990, 1992; Karman and Ingene, 1993; Moinzadeh and Ingene, 1993;

Walter and Grabner, 1975). Although there is a need for an increased understanding of consumer response, in particular to the brand-OOS situation, only a few scientific experiments have been undertaken in this area. With notable exceptions (e.g. Emmelheinz *et al.*, 1991; *Progressive Grocer*, 1968), most scientific experiments on the OOS consumer response have been based on laboratory experiments or idealized situations, such as gauging OOS responses using self-administered questionnaires. For instance, by using a simulated OOS situation, McAllister and Pessemier (1990) and Hoyer *et al.* (1996) found a relationship between variety-seeking tendencies of consumers and OOS responses. By using self-administered questionnaires to produce a frequency distribution of "intended" OOS responses, Walter and Grabner (1975) and Waltner and LaLonde (1975) discovered that a certain number of people (14 percent) would switch stores if their brand was out of stock for a longer period of time. In addition, using self-administered questionnaires in order to estimate the consumer's brand commitment, researchers found that consumers were prepared to switch stores (Beatty *et al.*, 1988, Lastovickla and Gardner, 1977; Mittal and Lee, 1988).

True field OOS experiments are rare, because they are expensive and potentially very risky for the retailer; but perhaps precisely these experiments have provided us with interesting information. Previous OOS experiments have identified a variety of OOS responses to the removal of one SKU within the product's line of a brand: postponement of buying, brand switching (at a lower price, the same, or at a higher price), switching stores in order to get the brand, seeking the same brand in a different variety (switching of SKU), and other behaviors, such as complaining to managers, returning to check on availability, or dropping – not bothering with the purchase at all (Charlton and Ehrenberg, 1976; Emmelheinz *et al.*, 1991; Gattorna, 1988; Moinzadeh and Ingene, 1993; *Progressive Grocer*, 1968; Schary and Christopher, 1979; Walter and Grabner, 1975). It is characteristic of these studies that postponement of buying (also called "defer" (Corstjens and Corstjens, 1995)), switching brands, switching SKUs within the same brand, and switching stores to get the preferred brand were the most frequently occurring OOS responses. Some of the essential findings of the true OOS will be discussed next.

A substantial percentage of consumers (32 percent) have been reported to switch brands in response to an OOS situation (Emmelheinz *et al.*, 1991). Switching to different SKUs within the same brand has also been studied: 21 percent of the consumers did so according to Weinstein (1993) and 17.5 percent according to Emmelheinz *et al.* (1991). A smaller percentage of consumers switched stores to purchase the desired brand (14 percent, (Emmelheinz *et al.*, 1991)). Delays or postponements of purchases also occurred with a lower percentage (12.3 percent (Emmelheinz *et al.*, 1991)). Fill-in trips accounted for a small percentage (0.08 percent (Emmelheinz *et al.*, 1991)). Finally, Charlton and Ehrenberg (1976) reported no long-term effects on sales.

Several factors have been reported to moderate OOS responses. One study showed that OOS responses differ by product (*Progressive Grocer*, 1968) but

Emmelheinz *et al.* (1991) found no differences among the products they studied. Consumer characteristics also affected the OOS responses: Emmelheinz *et al.* (1991) reported that customers who were loyal to a store were more likely to delay purchase than non-loyal customers. The perceived risk of the product – “the risk of purchasing a brand other than the preferred brand” (Emmelheinz *et al.*, 1991, p. 142) – has been shown to reduce brand switching, while the urgency to buy the brand had the opposite effect – that is, it increased the likelihood of consumers’ switching brands (Emmelheinz *et al.*, 1991).

The added value of our research to the current knowledge in this area was to focus on a brand’s complete line of SKUs rather than on one SKU within a product line. Moreover, it distinguished between temporary OOS and permanent assortment changes, and it investigated the effects of retail competition, consumer purchasing habits, and store loyalty on the OOS response. As the whole product line was removed from the shelves, there were mainly three OOS responses left to study:

- (1) postponement of buying;
- (2) brand switching; and
- (3) switching stores to get the brand.

Switching SKUs within the same brand was not an option in our experiment, because the design of the experiment did not allow this behavior – the study’s focus was brand loyalty, not SKU loyalty. That did not mean, however, that other OOS responses would not be possible; consumers could switch to adjacent categories. Although possible, earlier OOS research has shown that this was a rare response. Therefore, this response was not considered in the following hypotheses. Its occurrence was checked, however, during data analysis. Specific hypotheses for the present research are given below.

Hypotheses

The basic premise of the following hypotheses is that consumers who are confronted by their preferred brand incur two different kinds of psychological responses:

- (1) There are the feelings of frustration, irritation, or feelings of inequity (brand loyal consumers should be rewarded for their loyalty, not punished) and feelings of not finding their favored brand SKU and/or of not finding their alternative SKUs within their favorite brand (e.g. Corstjens and Cortsjens, 1995). These frustrations might be amplified by the fact that many consumers find shopping irritating (Clemmer and Schneider, 1989).
- (2) There are the behavioral efforts that consumers are willing to invest, in order to attain their preferred brand and so become satisfied with their purchases. These efforts range from visiting another store in order to get the brand, to switching brands within this store. These behavioral efforts, especially the willingness to switch stores, come at a “price.” The

more behavioral efforts a consumer has to undertake to compensate for the frustrations of not finding the preferred brand, the less willing the consumer will be to make these physical efforts. At some point, consumers come to a breaking point and are then willing to settle for a less desirable solution. Based on this decision, consumers in an OOS situation will either have to seek a different brand within the store, or will postpone buying and come back for a "fill-in" (Lesser and Hughes, 1986; Robinson and Nicosia, 1991).

Effects of competing stores

When consumers are confronted with OOS situations of their favorite brand, they might be willing to invest behavioral efforts in going to another store in order to find their preferred brand. However, visiting another store that carries the same assortment of brands requires time, especially when this other store is far away. Somewhere along the line, consumers make a pay-off decision between the distance they are willing to travel and the satisfaction they might attain by getting their preferred brand (Corstjens and Corstjens, 1995). The farther away this store is, the higher the likelihood that consumers are willing to switch brands. Therefore, we make the following hypothesis:

- H7*: if the intended brand choice is OOS and if there are stores with similar assortments nearby, consumers are:
- (a) less likely to switch to competing brands;
 - (b) more likely to switch stores to get the brand; and
 - (c) less likely to postpone buying the brand.

Temporary-OOS versus changes in assortments

Retailers distinguish between two kinds of OOS:

- (1) the brand is temporarily OOS (such as during peak hours on the weekend), which might suggest that the brand will become available at a later time; and
- (2) the brand is exchanged for another brand, owing to changes in retail assortment, suggesting that the brand will not be available at a later time.

A temporary OOS can be made recognizable to consumers through the empty shelves and the labels remaining on the shelves. Assortment changes, on the other hand, draw the attention of the consumers through shelves that are filled with competing brands (Borin and Farris, 1992) and through removal of labels. When a consumer is loyal to the brand and notices that his/her brand is removed from the shelf, and s/he cannot even switch SKUs within the preferred brand anymore, the irritation and frustration will rise. In order to compensate for these frustrations, the consumer will go to another store to get his/her preferred brand. Or else, some consumers might find switching stores too costly

and thus might decide to switch brands. Postponement of buying the brand is the least obvious choice, because the context indicates that this would not be a worthy option. This reasoning leads to the following hypothesis:

Preferred brand
out-of-stock

H2: if the intended brand choice is OOS and if the shelf is filled with a competing brand as opposed to an empty shelf, then consumers are:

- (a) more likely to switch to competing brands;
- (b) more likely to switch stores to get the brand; and
- (c) less likely to postpone buying the brand.

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Store loyalty

Reynolds *et al.* (1974/75) have suggested that store loyalists tend to be less venturesome, suggesting they would be more likely to switch brands. These consumers, in other words, adopt their brand preferences according to the time they prefer to shop. Confronted with an OOS, they will experience lower degrees of irritation due to their brand OOS, but the behavioral efforts of going to another store might be perceived to be higher (too venturesome). Therefore, they would rather stay in the store and switch brands than switch stores or postpone buying. In fact, Emmelhainz *et al.* (1991) find that store loyal consumers would rather postpone buying the brand (or come back to a fill-in trip). Based on this reasoning, we present the following hypothesis:

H3: if the intended brand choice is OOS and if consumers are store loyal, then they are:

- (a) more likely to switch to competing brands;
- (b) less likely to switch stores to get the brand; and
- (c) more likely to postpone buying the brand.

Large versus small purchase amounts per shopping trip

If consumers have smaller total purchase amounts (size of "ticket"), they might find it easier to switch stores. Consumers who purchase in small amounts may also shop more frequently in the same store and/or visit more stores than those who buy in large total amounts. It is not exactly clear though, why consumers do engage in these shopping trips, but they might enjoy shopping more or they have more time (e.g. Tranberg and Hansen, 1986). In either case, the more frequently these people visit their own store, the greater is their ability to postpone. In addition, the more familiar consumers are with other stores, the more likely we believe they are to visit these stores in response to an OOS. Consequently, when confronted with an OOS of their preferred brand, the consumers might incur substantial psychological effects like irritation, but they can more easily compensate for this because of their shopping habits.

Therefore, we present the following hypothesis:

H4: if the intended brand choice is out of stock and if consumers have a small total purchase amount per trip as opposed to a large purchase amount, they are:

- (a) less likely to switch to competing brands;
- (b) more likely to switch stores to get the brand; and
- (c) more likely to postpone buying the brand.

Total household spending in the store

Perhaps the greatest fear for a retailer is that the consequence of an OOS would cause a decrease in visits of the consumer to the store or a smaller amount of purchase per visit. Either of these effects would decrease the spending of the consumer in a store. These consequences could be far more severe than the lost revenue for the individual OOS item. Without strong previous research (except Corstjens and Corstjens, 1995), we believe that OOS situations might impel consumers to visit other stores and change their shopping patterns, resulting in a low revenue for the test-store.

H5: consumers spend less money in the test stores during the OOS period.

Methodology

Before going into the discussion of how the OOS experiment was designed, it is important to outline in depth the competitive environment of the retailers in The Netherlands. First, this outline gives us more insight into the reason why retailers in The Netherlands were interested in the answers of the research questions addressed in this study. Second, because the retail environment in The Netherlands is so unique, this outline places the OOS responses of the consumers in a proper perspective.

The retail context

In The Netherlands, as well as in any European country, the amount of shopkeepers (those who own up to six smaller stores) decreased and they were replaced by a group of "Large stores I & II" (consisting of more than seven larger stores). As a consequence, the amount of stores had been reduced from 9,632 in 1988 to 7,248 in 1995. According to Nielsen (1995), the group "Large stores I" consisted of Albert Heijn, Edah, Aldi, and the Hermans-group, and all the other large stores. The group of "Large stores I" made up 42 percent of the market and the group of "Large stores II", 24 percent. The rest of the market shares belonged to the small stores, which did not have the broad assortments of brands that belonged to the large stores, particularly the "Large stores I and II". There was a growing differentiation among the group "Large stores I", particularly around the ability to carry private brands and around the price image of the stores.

While the total amount of stores in general was decreasing, especially the amount of the small stores, the amount of stores belonging to the group of

“Large stores I”, and to some extent to the group of “Large stores II”, was increasing. This trend is not surprising, because consumer satisfaction with retail stores is affected by the accessibility, the assortment, and parking availability (Olson and Peter, 1990). This is why when new towns and villages are built, retailers “rush in”[1] to become the first retailer in the area. The new stores were usually large and therefore, over time, most stores in The Netherlands came to belong to owners within the “Large stores I and II” segment. These stores either had a size from 1,000-2,500m² or 400-1,000m². Please notice that, as the shopper nowadays gained more convenience, shopping in The Netherlands only took place between 9 a.m. and 6 p.m. on weekdays and on Saturday[2]. Shopping trips, therefore, had to be planned carefully. In addition, the retail branch – especially the food chains – remained highly competitive as the spending of the consumers was not rising in that area (Nielsen, 1995).

The OOS experiment described in this paper took place within one of the low-priced stores of the “Large store I” segment. The stores were all placed in villages inhabiting 5,000 to 10,000 people in a rural area of The Netherlands.

Design of the experiment

OOS experiments have been relatively rare, because they were perceived by retailers as risky and potentially very costly. The above-described intense competition among the group “Large stores I” in The Netherlands makes this all the more clear. Indeed, many aspects of our study were constrained because of considerations of expense and permanent loss of customers. For example, the categories that have been selected for this study had high purchase frequencies, which made it expensive to study the effects of multiple exposures to OOS conditions and the loss of loyal customers due to the “Large Store I” competition.

In order to measure brand loyalty and not SKU loyalty, the brands selected had to have clear substitutes within the category, and because the brand’s entire line was temporarily deleted from the assortment and no switching could occur within brand SKUs, the OOS response had been limited to three options:

- (1) switching to competing brands;
- (2) switching stores to get the preferred brand; and
- (3) postponing purchase in the category.

The other OOS responses, although less likely expected to occur, are not the focus of this study. They will, however, be briefly explored later on in the paper.

Potential determinants of the above-mentioned responses that had been studied were whether the shelves were left empty or were filled up, whether a consumer was loyal to a store, or what the amount of purchase was per shopping trip. Furthermore, the difference in amount of spending before and during the OOS period per individual was estimated.

The design of the experiment was constrained by aspects such as the following:

- (1) stores often had contracts with suppliers that demand that the brands must be on the shelves;
- (2) store managers had to give special instructions to remove the brands and replace them at the proper time;
- (3) the motivation of the store managers who had to keep the brands off the shelf was being put under pressure, when they received complaints from the customers;
- (4) there was a potential loss in sales, visits, and image as well as in store loyalty.

From these stores, the effects of OOS on actual purchase behavior were measured with a telephone survey.

Because of the retailer's interest in improving his negotiating leverage with significant vendors while remaining competitive against his retail competitors, the brands that had been selected took a leading role in their categories and had high degrees of retail distribution. In addition, these brands had clear substitutes and belonged to categories with high purchase frequencies and high household penetration rates (see also Emmelhinz *et al.*, 1991). Although it would certainly be interesting to compare the loyalties that had been experienced for the high-share brands versus the low-share brands, the management deemed the required higher sample size to be too expensive in order to include brands with low penetration rates (see also Emmelhinz *et al.*, 1991). The following brands were chosen: Coca-Cola (soft drink), Croma (cooking margarine), Friesche Vlag (coffee creamer), Lassie (rice) and OMO (detergent). As is shown in Table I, all[3] of the brands had a leading share in their categories. This was also the case for Friesche Vlag and OMO, but their leadership was attained via a smaller percentage of market share. In addition, Table I also shows that all brands had a high degree of distribution, and had a high household penetration.

Market characteristics/ brands	Market share (percent)	Distribution (percent)	Household penetration (percent)	Consumer awareness (percent)
Croma	58.9	100	33.1	NA
Coca Cola	57.9	94.0	NA	NA
Friesche Vlag	21.0	92.0	36.0	27.0
Lassie	NA	NA	NA	NA
OMO	7.8	94	24.6	75

Table I.
The characteristics of
the brand

Because this is an OOS experiment, it is important to look at the share of the brands within the store, as shown in Table II.

The owner of the test store apparently had a much higher percentage of private brands as compared to the average percentage of all stores in The Netherlands. This was particularly the case for the coffee creamers and rice products and, to a lesser extent, for the other products. This percentage might have had an influence on the OOS responses. For instance, consumers could have left the store sooner in order to get a national brand in case their preferred brand was out of stock, because they did not prefer private brands. This could specifically have been the case for the coffee creamers and the rice products.

Eight different stores were selected by the retailer and placed within the split-plot design (Cochran and Cox, 1957) as described in Table III.

Brand information	Croma (percent)	Coca Cola (percent)	Friesche Vlag (percent)	OMO (percent)	Lassie (percent)
Share product category	12	26	35	9	33
Share private brands test store	15	15	45	11	50
Share private brands national	15	6	14	13	26
Frequency OOS	Seldom	Seldom	Seldom	Seldom	Seldom

Note: This information was provided by the management of the OOS test store

Table II.
The characteristics of the brand within the OOS store

Store no./competition	Brand				
	Coca Cola	Croma	Friesche Vlag	Lassie	OMO
1/ C	E	F	F	E	F
2/ NC	E	F	F	E	F
3/ C	F	E	E	F	E
4/ NC	F	E	E	F	E
5/ C	E	F	F	E	F
6/ NC	E	F	F	E	F
7/ C	F	E	E	F	E
8/ NC	F	E	E	F	E

Notes:
C = competing stores in the area; NC = no-competing stores; E = shelf empty; F = shelf filled with competitive brand

Table III.
The design of the OOS experiment

Shelf empty referred to a situation where the brand was taken from the shelf and the shelf was left empty. This condition suggested to the consumer an OOS situation. “Shelf filled” meant that the retailer had to fill the shelf with a competitive brand, thus hiking the visibility of the competitor’s brand. This situation suggested to the consumer an assortment deletion.

Competing stores referred to a village or neighborhood of competitive stores with a similar assortment (mostly from the group “Large stores I or II”). The “no-competing” stores meant that there were no competing stores with a similar assortment (mostly from the group “Large stores I or II”). If the consumers wanted to find their brand in a similar store that carried a particular assortment, they had to switch neighborhoods or villages.

Sampling

During the pretest period, we confirmed that:

- (1) store managers cooperated;
- (2) competing stores carried similar brand assortments; and
- (3) consumers agreed to provide telephone numbers and respond to a survey in an accurate manner.

As shown in Table IV, in week 0, a marketing research company instructed its employees to identify consumers who purchased one or more of the five test brands. Some 2,219 consumers who were buying one of the test brands were recognized in the eight test stores. These consumers were then asked to participate in a general study on food and health. Then questions about food habits, instead of shopping behaviors, were asked in order to avoid interactive testing-effects (halo-effects), as the consumers had to be interviewed one more time. If they agreed to participate, they were asked about their brand loyalty, their shopping habits, and whether they would be available for subsequent questioning in the near future.

At week 1 the five test-brands were removed from the stores. As OMO (the detergent) had been bought again less frequently, this brand was removed from the shelf for two weeks in some stores and for four weeks in other stores.

At the end of week 3, the manipulation of the stores ended and the brands became available again in week 4. Consumers were then surveyed by telephone and were asked about their OOS responses. As shown in Table V, out of the 2,219 consumers in the original sample, 469 could not be reached or refused to participate; this left 1,750 consumers to be interviewed; 1,050 customers said

Week -1	Week 0	Week 1	Week 2
Pretest	Recruitment of study participants	Week 1	First participant survey

Table IV.
Timing and order of
experiment activities

“no” to the question whether they had “the intention to buy one out of the five test-brands during the OOS-period”, which left 700 consumers who bought one out of the five test-brands in the test-stores. The 1,050 consumers were not questioned any further. Out of the 700 consumers, 110 bought more than one of the five brands and these consumers were eliminated from further questioning; 590 consumers who had experienced one OOS were used for subsequent analysis. In other words, this study only gave the consumers’ response to one brand out of stock and not to more brands that were out of stock. This last question, although interesting, was beyond the scope of this study.

As shown in Table VI, the number of OOS experiences was spread unequally over the test brands. This might have been caused by the purchase frequency, which was higher for soft drinks, followed by milk products and butter, and finally, rice and detergent that were purchased more slowly.

Demographic characteristics of the consumers

The average age of the 650 consumers was 41.6 years; 9 percent were between 10 and 30 years of age; 44 percent were between 30 and 40 years of age; 24 percent were between 40 and 50 years of age, the remainder, 33 percent were older than 50 years. The majority (80 percent) of the consumers were female.

Operationalizations of the measures

- (1) *Brand preference*: the consumers who were engaged in the experiment were all brand-loyal, hence the term “preferred brand”. The brand preference was measured by using the measure of Jacoby and Chestnut

2, 219	Number of consumers in the original sample
-469	Not reached or refused
1,750	Consumers surveyed
-1,050	No attempt to purchase test brand in test stores during test period
= 700	At least one preferred brand OOS experience in test stores period
-110	Two or more preferred brand OOS experiences
= 590	One preferred brand OOS experience

Table V.
Survey population size
at each stage of the
experiment

Cola	240
Friesche Vlag	175
Lassie	41
Croma	119
OMO	15
Total	590

Table VI.
Consumers encountering
OOS by brand

(1978). The two questions "Do you prefer brand x" and "Did you buy brand x lately" were combined into one scale.

- (2) *Store loyalty*: the store loyalty was measured by asking "How much of your shopping-trips do you make to this store in one week". Based on the answers, the operationalizations of store loyalty were laid down in a percentage of shopping-trips that had been made to a particular store. From these, three degrees of store loyalty were identified. Consumers who made more than half of their weekly shopping-trips to the test-store were classified as "store loyals". Consumers who divided their trips equally between the test-store and other stores were classified as "opportunists" and consumers reported to do more shopping-trips to competing stores were classified as "competitor loyal".
- (3) *Amount of purchases*: the number of purchase trips were measured by asking "How many Dutch guilders do you spend in one week and how many shopping trips do you make in one week?" The "small amount of purchase per shopping trip" was defined by those consumers who spent less than 70 guilders per visit. The "large amount of purchase per shopping trip" was defined by the ones who spent more than 70 guilders per visit.

Research results

Before discussing the results of our hypotheses, we present the overall findings on OOS responses for each brand in Table VII below. In most cases, switching brands dominated switching stores or postponing purchase.

Some striking observations can be made:

- (1) In general, the amount of switching that consumers engaged in ranged from 31 percent to 65 percent. There was also a substantial group of

Store no./competition	Brand				
	Coca Cola (percent)	Croma (percent)	Friesche Vlag (percent)	Lassie (percent)	OMO (percent)
Switched brands	65 (1.3)	47 (-1.6)	62 (1.2)	50 (-0.5)	31 (-1.2)
Switched stores	14 (-2.2)	34 (2.6)	20 (-1.2)	28 (0.4)	23 (-0.1)
Postponed purchase	21 (0.3)	19 (-0.3)	18 (-0.7)	22 (0.3)	46 (2.1)
Totals	<i>n</i> = 133	<i>n</i> = 203	<i>n</i> = 170	<i>n</i> = 40	<i>n</i> = 13

Notes:

Chi-square: 25.6; D.f.: 8; Signif. 0.00. The numbers in brackets represent the standardized-residuals. In other words, they represent the square root of the contribution to the total chi-square test

Table VII.
Consumer response
to OOS

- consumers who switched stores (this ranged from 14 percent to 34 percent).
- (2) There were large differences of OOS responses among the brands. Coca Cola had the most salient OOS response, as 34 percent of the consumers were willing to walk out of the store to get their preferred brand; Croma had the lowest percentage. It was difficult to trace the real reasons for such a difference, given the small amount of brands used in this study. For instance, as Croma and Coke both had large market shares and a high distribution, there was still a large difference in the willingness of consumers to switch stores. This difference was due to the urgency of buying the brand (thirsty consumers cannot wait to get their Coca Cola) or it was due to a different degree of brand parity (Coke was better positioned compared to the other brands).
 - (3) Note in Table VII that not all consumers are listed: some consumers provided incomplete information; but more important, about 1 percent of the consumers responded differently to the OOS situation than the three alternatives we have investigated. Indeed, about four or five consumers responded and said that they switched categories. However, these observations had a low frequency of occurrence and, therefore, they were not further analyzed in this paper.

Competing stores

H1 was about the posited effects from competing stores (a competing group “Large store I” with similar assortments in the same village or neighborhood) on OOS behavior. As shown in Table VIII, the effects of this condition were not supported. *H1a*, that consumers would be less likely to switch to competing brands when the competing stores were nearby, was not supported. *H1b* and *1c* (consumers would be more likely to switch stores and less likely to postpone) were not supported either.

OOS response	Store competition	
	No store competition (percent)	Store competition (percent)
Switched brands	55.2 (-0.1)	56.6 (0.2)
Switched stores	24.5 (0.2)	23.4 (-0.2)
Postponed purchase	20.3 (0.0)	20.1 (0.0)
Totals	<i>n</i> = 306	<i>n</i> = 274

Notes:
Chi-square 0.13; D.f.:2; Signif: 0.94

Table VIII.
Effects of nearby store
competition

Empty versus filled shelves

In *H2* we posited different effects of the shelfspace that was filled with competitive brands as opposed to the shelves that were left empty. Table IX shows that *H2a* (consumers would be more likely to switch to competing brands) was not supported; *H2b* (consumers would be more likely to switch stores in order to get the brands with filled shelves) was not supported either. *H2c* (consumers would be less likely to postpone buying the brand) was also not supported. In general, we concluded that whether the shelf was filled or left empty had no effect on the OOS responses.

Store loyalty

H3, store loyal consumers would be more likely to switch brands (*3a*), less likely to switch stores (*3b*), and more likely to postpone purchase (*3c*), was not supported (see Table X). Each pattern is the reverse of what we expected to observe[4]. Thus *H3a*, *b*, and *c* were not substantiated.

Large and small amounts of purchases per shopping trip

H4 stated that the purchase amount per shopping trip would affect OOS responses. Table XI shows that consumers were significantly less likely to postpone the purchase if the amount of the purchase was large (*4c* is

OOS response	Shelfspace	
	Shelfspace empty (percent)	Shelfspace filled (percent)
Switched brands	53.8 (-0.5)	58.4 (0.5)
Switched stores	24.6 (0.2)	23.1 (-0.3)
Postponed purchase	21.5 (0.5)	18.4 (-0.6)
Totals	<i>n</i> = 335	<i>n</i> = 255

Table IX.
Effects of filled shelves
versus empty shelves

Notes:
Chi-square 1.35; D.f.:2; Signif: 0.51

OOS response	Store loyals (percent)	Store loyalty	
		Opportunists (percent)	Competitor loyals (percent)
Switched brands	51.9 (-0.5)	57.3 (0.2)	56.3 (0.1)
Switched stores	34.6 (1.9)	27.0 (0.6)	21.2 (-1.1)
Postponed purchase	13.6 (-1.3)	15.7 (-1.1)	22.4 (2.1)
Totals	<i>n</i> = 81	<i>n</i> = 89	<i>n</i> = 410

Table X.
Effects of store loyalty

Notes:
Chi-square 9.37; D.f.: 4; Signif: 0.05

OOS response	Size purchase		Preferred brand out-of-stock
	Small amount of purchase/trip (percent)	Large amount of purchase/trip (percent)	
Switched brands	51.0 (-0.9)	58.2 (0.6)	1023
Switched stores	22.9 (-0.3)	24.5 (0.2)	
Postponed purchase	26.0 (1.8)	17.3 (-1.3)	
Totals	<i>n</i> = 192	<i>n</i> = 388	

Notes:
Chi-square 6.23; D.f.: 2; Signif: 0.04

Table XI.
Effects of consumer
purchase amount per trip

substantiated). While a decrease in purchase postponement translated into an increase in brand switching and store switching, the increase was not individually statistically significant (*4a* and *4b* were not substantiated). It appeared, however, that switching brands is the most frequent response.

Effect of OOS on consumer spending in test stores

H5 stated that OOS experiences would decrease the weekly consumer spending in the test-stores. On average, consumers were reported to spend 3.2 guilders (one US dollar is about 1.8 Dutch guilders) less each week in the test-stores after the OOS experience. The difference between pre-OOS and post-OOS of weekly spending levels was not significant, however, and was entirely due to lost and delayed sales of the OOS items.

Summary of findings, limitations and directions for future research

Although academics and trade specialists have been speculating that brand loyalty had eroded and that most of these opinions had been based on behavioral data and speculation, acid tests have been lacking. The acid test for this study took place in a low-priced store that belonged to one of the largest retailers in a rural area in The Netherlands. The data from this study showed that almost 45 percent of the consumers were not willing to switch brands when their preferred brand was OOS: they either switched stores or postponed the purchase. These OOS responses differed substantially per brand. It seemed that consumers were willing to undertake behavioral efforts in order to obtain their preferred brand. The experimental design and the consumer shopping characteristics allowed us to investigate in depth the way in which consumers were willing to undertake efforts in order to obtain their preferred brand. To our surprise, it was striking that in the present experiment, OOS response seemed to be remarkably stable under a variety of experimental treatments. The presence of nearby competing stores did not influence the percentage of store switchers versus brand switchers. Nor did the sign of an assortment change (shelves filled) versus a temporary OOS (empty shelves) make a difference in the

OOS response. However, consumer shopping characteristics did have an effect on the OOS response:

- (1) Consumers classified as “store loyal” were more likely to switch stores.
- (2) Consumers purchasing small amounts per shopping trip were less likely to switch brands and more likely to postpone purchases.
- (3) Finally, a surprising finding was that a total amount of the spending of the consumers was only slightly affected by the OOS (only marginally more than the lost sales of the test-items).

The basic intention of this OOS experiment was to study the consumers’ OOS responses to a whole product line of a preferred brand that was taken from the shelves. Earlier research mainly focused on the OOS response to one SKU of a brand removed from the shelves (Emmelhainz *et al.*, 1991). Differences in research goals and experimental designs made it difficult to compare them. Still, earlier work referred to a large willingness of the consumer to undertake behavioral efforts in order to get the brand they preferred (by either switching to SKUs within the brand, being willing to switch stores, or to postpone the purchase). Earlier work showed that about 14 percent were willing to switch stores, while in this study it was 24 percent. This difference is understandable, because the whole brand was removed from the shelf. In addition, the high shares of private brands on the OOS store as well as the fact that consumers were mainly competitor-loyal rather than loyal to the OOS store might have contributed to this, too.

The competitive retail environment did not have an effect on the willingness of consumers to switch stores. In other words, consumers were willing to engage in large distances to get their favorite brand, in order to make the trip to the stores. It must be noted also that the positioning of the store was such that many consumers were cherry pickers, seeking some of the preferred brands priced a bit cheaper. Visiting the different stores in order to get the preferred brand cheaper was a salient characteristic of the shopping behavior of the consumers of the OOS store.

A counterintuitive finding in this study was that consumers who were classified as “store loyals” were more likely to switch stores in response to the OOS. This observation was not in accordance with the findings of Emmelhainz *et al.* (1991) or with the expectations from the literature which depicted store loyal consumers to be less venturesome (and thus would not switch brands). However, we interpreted this finding to be the willingness of the consumers to punish the retailer to whom they were loyal and who refused to carry their brand.

Implications

The design of this OOS experiment fits well with the many questions that retailers have about whether they or the manufacturer have power (Quelch and Harding, 1996). Recently, many authors have been suggesting that retail power

is rising. Retail power implies that the retailer has a large amount of freedom to stock their private brands at the cost of national brands.[5] The ability to stock private brands is caused by the large amount of parity that consumers might perceive among the brand and so, consumers might be willing to invest behavioral efforts in the brands. However, if consumers would be willing to invest behavioral efforts in the brand, retailers would like to know if their own competitive environment would have any effect. This study shows that consumers were willing to invest much in getting their preferred brand and retailers should perceive the results of this experiment as a warning. Quelch and Harding (1996) recently suggested that, rather than using abstract language to investigate whether the retailer has power or the manufacturer, joint experiments involving both manufacturer and retailer should be undertaken, so as to define what consumers are willing to do to get the brand. Experiments like these show the power of the manufacturer for at least in the short term. Three main findings emerge for retailers:

- (1) Retailers, but specifically the retailer described in this paper, should keep in mind that abruptly taking a brand out of store is simply disastrous for their own retail chain because a large percentage of consumers are walking out of the store.
- (2) When retailers change their assortment abruptly, they specifically lose their own, and perhaps most important segment of consumers, namely the store loyals.
- (3) Retail competition as outlined in this study did not have a large impact on the strategic policies of the retailers' assortment. Consumers, at least those who were studied in this paper, were quite flexible and mobile and therefore were willing to create a portfolio of stores from which they could choose. Thus, being a single retailer in one specific area will not be a substantial competitive advantage these days.

But what about the long term? This experiment is clearly a short-term one. Many marketing experts expect that over a long period of time retailers will be more willing to invest in private brands (Quelch and Harding, 1996). At least in this experiment, the consumer's commitment might explain why this trend of introducing private brands did not take place in The Netherlands. Limitations of the experimental design, though, might have prevented some of the hypothesized responses from occurring or being observed, particularly the switching of brands. For example, it might take a long time for consumers to equate OOS with assortment decisions. Similarly, it might take longer for consumers to change their shopping patterns in order to favor competing stores, or the distances gauged by the managers might be inadequate to stimulate the responses hypothesized. Currently, some retailers were quite successfully able to change the behaviors of the consumers in favor of their private brands, and data showed that this expansion was even more successful in countries like Great Britain.

Limitations of the study and further research

Although this large experimental undertaking has provided us with new information about the consumer's responses to OOS situations, some limitations in the study can be avoided in future OOS experiments.

First, there might have been problems with the abilities of consumers to recall purchasing behaviors over the previous four weeks. Perhaps keeping a diary in which consumers note their responses would be more suitable than doing a telephone survey. However, owing to the costs of this already large undertaking, collecting dairies was not feasible. In addition, the diary could have caused interactive testing effects (e.g. consumers might become overly attentive to the OOS situations and so display artificial responses). Or else, the OOS responses of consumers could have been observed in the store (Emmelheinz *et al.* 1991). This undertaking would be rather expensive, for the OOS period of the detergent took about two weeks.

The long-term consequences of the OOS could have been studied by changing the length of the OOS situation or by tracking the sales of the consumer in the course of time.

Although we made a distinction between temporary OOS versus changes in assortment – which is made recognizable to the consumer through the empty shelves and the labels remaining on the shelves – we did not validate that consumers actually perceived this situation to be so. In a future experiment, this should be further validated.[6]

This study was focused on brand loyalty, not SKU-loyalty. Although brand loyalty is a better measure of the overall strength of the brand than SKU loyalty, a model that relates to the two concepts is needed. One might feel relatively indifferent between the 250ml size of Coke and the 1 litre size, but one might still be fiercely loyal to Coke. In other words, simply summing up the loyalty to different SKUs will not necessarily be a good indicator of brand loyalty.

This experiment was executed on a lower-priced retailer and could therefore have biased the data findings of this paper. In another experiment, different retailers should be participating. However, because of the large undertaking of such an experiment, this might not be easy.

Furthermore, instead of questioning consumers about their spending pattern (which could be unreliable), cash register data could be used. Recently, scanning abilities[7] which were not available at the time of the experiment have been rising and could be used to better estimate the OOS responses.

Finally, in this paper psychological effects such as irritation and frustration of consumers have been frequently mentioned. These psychological effects can be measured indirectly. For instance, the degree of frustration of the consumers can be measured by using scales which measures the autonomic reactivity.

Notes

1. "Rushing in" is perhaps a bad term as retailers need to obtain permission from city planning to build a store within a neighborhood. Usually, only a few slots are made available for the retailers, therefore governmental lobbying is important here.

2. While now the hours of opening of the stores have expanded, during the OOS experiment, these were the hours of opening of the stores then.
3. The manufacturers of the brand Lassie were not willing to provide us with their market information.
4. Please note in Table IX that the majority of the consumers were competitor loyal rather than store loyal. Depth interviews with some of the consumers and discussion with the management made us aware of the fact that this store had a low price image, and most of the consumers were indeed only doing part of their shopping in the store, specifically for the cheap priced brands (cherry picking).
5. Retailers in The Netherlands apparently have been cautious though in introducing private brands. Within the product categories, the share of the private brands as well as the rise in the share of these private brands was quite low. The brands under investigation were as follows: for detergent it ranged from 12.9 percent in 1991 to 12.4 percent in 1994; the share of soft drinks ranged from 3.2 percent in 1991 to 5.5 percent in 1994; for milk it ranged from 13.6 percent to 12.7 percent. For butter products it ranged from 10.6 percent to 15.1 percent, for rice it ranged from 21.5 percent to 26.3 percent (Nielsen, 1995).
6. We are thankful to an anonymous reviewer for this comment.
7. In The Netherlands there were only 483 stores with scanning technology in 1988; now there are 2,000 stores with scanning technology from a total of 7,248 stores (Nielsen, 1995).
8. This information was provided by the management of the OOS test store.

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