Reference price and scarcity appeals and the use of multiple influence strategies in retail newspaper advertising

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The use of scarcity and reference price techniques in 13,594 retail newspaper display advertisements across four major U.S. cities was evaluated in terms of frequency and usage strategies using framing and information-processing perspectives. One or both of these techniques were found in 22.4% of the ads. Scarcity was used more frequently than reference pricing, and was strongly associated with the use of reference pricing. Limited time availability was found to dominate the use of scarcity tactics. Scarcity and reference pricing were also strongly associated with the use of other attention and persuasion tactics, such as color ads, larger ads, and “Sale” announcements. Given the extensive use of reference pricing and scarcity appeals, their association with each other, and their further association with other commonly recognized advertising tactics, additional research on the use of multiple influence strategies appears warranted.

While the success of “compliance professionals” in producing social and consumer influence has been well documented (Cialdini, 2001), the tendency of academic researchers to focus on examining single techniques in a given set of studies is commonplace. This tendency is understandable given the desire to isolate and confirm over multiple experiments the theoretical processes underlying their effectiveness. Among practitioners who are interested in influencing consumers, however, the simultaneous use of different techniques is often the rule rather than the exception. This is also understandable given the competitive marketplace in which practitioners struggle to attract consumer dollars: If one technique is effective, then perhaps the use of two or three of them together might be even more effective (Howard, 1995).

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Given this reality, research documenting the frequency and manner of use of multiple influence tactics in the marketplace has been surprisingly absent. This research addresses that gap using an empirical review of techniques employed in one major means of consumer influence: retail newspaper advertising. Although newspaper circulation has been declining in recent years (Belch & Belch, 2004), most U.S. households still read newspapers on a daily basis; that medium recorded $46.7 billion in advertising revenue in 2004 (Newspaper Association of America; Facts about Newspapers, 2005).\(^1\) Retail display advertising typically accounts for about 70% of annual U.S. daily newspaper advertising revenues (Belch & Belch, 2004). For the most part, retail advertising seeks to stimulate short-term unit sales of particular merchandise, or increase store traffic (Arens & Schaefer, 2007).

Reference pricing and scarcity are among the most commonly used persuasion techniques discussed in the domain of retail advertising (Berman & Evans, 2004; Levy & Weitz, 2004). Reference price ads present a higher price to which a lower (offering) price is compared. Research has supported the position that when reference and retail offering prices are presented together they are compared, and this comparison has a favorable effect on consumer deal perceptions (Mazumdar, Raj, & Sinha, 2005). Although different theoretical arguments have been tendered to account for reference price effects, including assimilation-contrast (Sherif, Sherif, & Nebergall, 1965), adaptation level theory (Helson, 1964), and anchoring-adjustment principles (Tversky & Kahneman, 1971), each predicts that comparing a low product price to a higher reference price can result in the low price being perceived to be lower, when compared to another condition in which the low price is evaluated in the absence of the higher price, other things being equal.

The scarcity technique postulates that the desirability of a product is accentuated when its availability is limited. Scarcity has been recognized as a fundamental influence technique in the marketplace (Cialdini, 2001). Empirical data supporting its influence on value perceptions have been reported for products as diverse as fast food (Brannon & Brock, 2001), batteries (Inman, Peter, & Raghuribir, 1997), nylon hosiery (Fromkin, Olson, Diphaye, & Barnaby, 1971), and women’s suits (Szybillo, 1976). Although disagreements exist regarding their theoretical mechanism (see Lynn, 1992), there is a general consensus that scarcity appeals have a strong persuasive effect (Cialdini, 2001; Pratkanis & Shadel, 2005).

The relative use of reference pricing and scarcity as influence techniques in advertising can be evaluated using models of framing effects. Following the typology of Levin, Schneider, and Gaeth (1998), reference pricing and scarcity both serve as a form of goal framing, where the intent of the

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\(^1\)See www.naa.org
A shopper is to receive a good deal. Presenting a lower offer price relative to a higher reference price in an ad accentuates the consumer benefit to be received, which represents a “positive frame.” Emphasizing the scarcity of the offer (e.g., “three days only”) encourages the shopper to take action to avoid loss and is thus represents a “negative frame.” Research on goal-framing effects indicates that negative framing is typically more persuasive than positive framing (Block & Keller, 1995; Ganzach & Karsahi, 1995; Meyerowitz & Chaiken, 1987). Whether practitioner insight regarding these framing effects is reflected in the greater use of scarcity appeals relative to reference pricing in retail newspaper advertising, and the form taken by those appeals, is one empirical question examined in this research.

A second question addressed is whether scarcity and reference pricing are associated with the use of ad color, size, and “Sale” announcements in an ad. From an information-processing perspective, those associations might be expected. In order for scarcity and reference pricing to be persuasive, consumers must sufficiently consider the advertisements that contain them (McGuire, 1978). Kover’s (1995) research on advertising copywriting revealed that copywriters believe that, to be successful, their work must: (1) break through advertising clutter to attract a reader’s (viewer’s) attention and interest, and (2) deliver a persuasive message that will resonate with the reader (viewer). Toward this end, retail newspaper advertising routinely relies on headlines, ad size, color, and sale announcements of various types to differentiate a merchant’s offer and convey a more impactful message (Bobinski, Cox, & Cox, 1996; Elliott & Speck, 1998; Finn, 1988).

The use of color and size in advertisements has been found to increase both consumer attention (Finn, 1988) and sales (Percy, 1984; Wagner, 1988). Although “Sale” announcements are generally discussed as attention-grabbing tactics (Belch & Belch, 2004), recent research has revealed their ability to increase revenues (Anderson & Simester, 2003) and function as persuasion cues (Howard & Kerin, 2006). Hence, to maximize persuasive impact, we expect that advertisers might simultaneously pair the use of scarcity and reference-pricing techniques with other recognized means of achieving attention and influence, such as sale announcements, ad color, and ad size.

A final objective of this research is to provide a breakdown of particular scarcity appeals used in retail newspaper advertising. Although it is acknowledged that scarcity can be manifested in various ways (Cialdini, 2001; Lynn, 1992), no study to date has empirically documented their relative frequency of use in the marketplace (see Pratkanis & Shadel, 2005; Pratkanis, Shadel, Kleinman, Small & Pak, 2006, for an analysis of the frequency of use of scarcity ploys in consumer fraud).
DATA COLLECTION

Data were obtained through a content analysis of 13,594 retail display advertisements in four major and geographically dispersed U.S. newspapers over a 6-month period in 2004. The newspapers examined were the Chicago Tribune, Dallas Morning News, Los Angeles Times, and New York Times. Sources for all four newspapers confirmed that ads 17 square inches or larger in size (e.g., two columns wide by 4 inches in height) account for over 90% of the display ad revenues, and all such ads were examined for a 195-day period that included Memorial Day through Thanksgiving. Coding was performed by two research assistants and confirmed by the authors.

Reference pricing was defined as all forms of price comparisons in which high/low dollar amounts were explicitly stated in the ad (e.g., Regularly $___ Now $____; Manufacturer’s List Price $____ Our Price $____). Scarcity was defined in terms of unavailability across three variations: “limited time,” in which a time limit is explicitly set on consumer opportunity to take advantage of an offer (e.g., “Three Days Only!”), “limited number,” in which consumers are informed that the supply of available products is limited (e.g., “Quantities Limited”), and “purchase restrictions,” defined as either purchase quantity limits (e.g., “Limit 3 per customer”), minimum purchase requirements (e.g., “Offer available with a minimum purchase of $25”) (Inman et al., 1997), and exclusive offering, in which an advertisement states that a product or service is only available from a particular retailer, (e.g., “Exclusive Showing At!”, “You’ll Only Find [product/brand] At!”).

A sale announcement was defined as explicit use of the word “Sale” in an ad, as well as synonyms such as Clearance/Clearout, Liquidation, Going Out of Business, Deal, or Special (with “Sale” itself accounting for 80.1% of the occurrences). The use of ad color was defined for ads containing colors other than black and white. Advertisements that were full page or larger (versus smaller) defined the ad size variable.

RESULTS

Table 1 shows the incidence of reference price and scarcity appeal usage. These appeals were used alone or in combination with each other in 22.4% (N=3043) of the 13,594 ads studied. Scarcity appeals appeared in one in five

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2Note that our use of display ads, by definition, excludes classified ads and advertising inserts.

3This variation is not to be confused with “exclusive information” in which consumers believe they are getting access to information or deals that others are not (see Brock, 1968; Cialdini, 2001). In advertising, use of the “exclusive information” technique is generally employed in direct mail, telemarketing, and Internet media (and for obvious reasons is not seen in newspaper ads).
Reference pricing was observed in 6.7% of the ads. The association between these two variables is highly significant ($\chi^2=1447.8$, $p<.0001$). Scarcity and reference pricing were jointly used in $N=632$ ads, accounting for 69.3% of the reference price and 22.9% of the scarcity ads observed.

The associations between scarcity and reference pricing with sale announcements, ad color, and ad size were examined using hierarchical log linear analysis. All variables were coded as either present or absent in all ads, resulting in a series of $2 \times 2 \times 2$ tables shown in Table 2.

A significant three-way interaction between reference pricing, scarcity, and sale announcements is shown in Table 2a ($LR-\chi^2=111.6$, $p<.001$). When reference pricing is employed, sale announcements are not associated with scarcity appeals ($LR-\chi^2<1$); sales announcements are equivalently used when scarcity is (69.3%) or is not (67.9%) present. However, a significant association between scarcity appeals and sale announcements is observed when reference pricing is not used ($LR-\chi^2=934.7$, $p<.00001$); sales announcements are employed at almost four times the rate in scarcity ads (39.5%) than in non-scarcity ads (10.5%). Overall, sale announcements appeared in almost half (46.3%; $N=1280$) of scarcity ads. The use of sales announcements in reference price ads (69.3%; $N=632$) precisely matches the use of scarcity in those ads. As shown in Table 2b, the three-way interaction between reference pricing, scarcity, and ad color is not significant ($LR-\chi^2=1.34$, $p=.25$). However, there is a significant association between scarcity appeals and ad size ($LR-\chi^2=288.6$, $p<.0001$): 31.6% ($N=874$) of scarcity but only 16.6% ($N=1798$) of non-scarcity ads used color.

As shown in Table 2c, the three-way interaction between reference pricing, scarcity, and ad size is insignificant ($LR-\chi^2=1.34$, $p=.25$). However, there is a significant association between scarcity appeals and ad size ($LR-\chi^2=288.6$, $p<.0001$): 31.6% ($N=874$) of scarcity but only 16.6% ($N=1798$) of non-scarcity ads used color.

### Table 1

<table>
<thead>
<tr>
<th>Scarcity appeal</th>
<th>Used</th>
<th>Not used</th>
<th>Reference pricing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used</td>
<td>632  (4.6%)</td>
<td>2,131 (15.7%)</td>
<td>2,763 (20.3%)</td>
</tr>
<tr>
<td>Not used</td>
<td>280  (2.1%)</td>
<td>10,551 (77.6%)</td>
<td>10,831 (79.7%)</td>
</tr>
</tbody>
</table>

| Total           | 912 (6.7%) | 12,682 (93.3%) | 13,594 (100.0%) |

*aCell percentages of total sample.*
of non-scarcity ads are full-page size or larger. The association between reference pricing and ad size is also significant (LR-$\chi^2$=172.9, $p<.0001$); 37.7% ($N=344$) of reference price ads but only 18.4% ($N=2328$) of non-reference price ads are full-page size or larger.

Given the extensive use of scarcity appeals, analyses were conducted to document the relative frequency of the three types of scarcity we examined. Scarcity appeals are clearly dominated by the use of the limited time technique, which was present in 17.3% ($N=2345$) of all retail display ads. Limited quantity ads appeared in 6.4% ($N=867$) of display ads, followed by those with purchase restrictions (3.2%; $N=438$). However, the proportion of scarcity ads that also used reference pricing was higher for purchase

$^4$Ad counts for the purchase restriction categories were: purchase limits ($N=277$), minimum purchase required ($N=115$), exclusive offering ($N=89$).

### Table 2

<table>
<thead>
<tr>
<th></th>
<th>Reference Pricing Used</th>
<th>Reference Pricing Not Used</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scarcity</td>
<td>Scarcity</td>
</tr>
<tr>
<td></td>
<td>Used</td>
<td>Not used</td>
</tr>
<tr>
<td>Sale cited</td>
<td>438 (69.3%)$^b$</td>
<td>194 (67.9%)</td>
</tr>
<tr>
<td>Sale not cited</td>
<td>194 (30.7%)</td>
<td>86 (32.1%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Reference Pricing Used</th>
<th>Reference Pricing Not Used</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scarcity</td>
<td>Scarcity</td>
</tr>
<tr>
<td></td>
<td>Used</td>
<td>Not used</td>
</tr>
<tr>
<td>Color ad</td>
<td>206 (32.6%)</td>
<td>46 (16.4%)</td>
</tr>
<tr>
<td>Black &amp; white ad</td>
<td>426 (67.4%)</td>
<td>234 (83.6%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Reference Pricing Used</th>
<th>Reference Pricing Not Used</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scarcity</td>
<td>Scarcity</td>
</tr>
<tr>
<td></td>
<td>Used</td>
<td>Not used</td>
</tr>
<tr>
<td>Full-page or larger ad</td>
<td>276 (43.7%)</td>
<td>68 (24.3%)</td>
</tr>
<tr>
<td>Less than full-page ad</td>
<td>356 (56.3%)</td>
<td>212 (75.7%)</td>
</tr>
</tbody>
</table>

$^b$Column percentages.
restrictions (35.2%) than for limited time (22.9%) or limited number (23.0%).

The relationships between scarcity variations and sale announcements, ad color, and ad size are shown in Table 3. The association between scarcity variations and sales announcements is significant ($\chi^2=17.5$, $p<.001$), where the use of sales announcements is highest for limited time (47.0%) and lowest for purchase restrictions (37.0%). Significant associations are found between scarcity variations and the use of color in ads ($\chi^2=67.1$, $p<.0001$), and ad size ($\chi^2=60.7$, $p<.0001$). Ads using purchase restrictions are more likely to use color (46.6%) and full-page or larger ads (49.1%) than other forms of scarcity appeals.

### DISCUSSION

Our analysis of scarcity and reference price usage reveals the importance of both techniques as persuasion tactics in retail advertising. The practical significance of recognizing the manner and extent of use of these techniques becomes apparent in light of the dollar expenditures for retail advertisements that display them. Assuming our content analysis of retail advertisements in the four major newspapers generalizes nationally, an estimated $6.62$ billion was spent in 2004 on retail display advertising containing one or both of these appeals. Note in particular that limited time scarcity appeals appeared in an estimated $5.1$ billion of newspaper display ads.\(^5\)

The more frequent use of scarcity (representing a potential loss) relative to reference pricing (representing a potential gain) is consistent with

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\(^5\)These estimates for 2004 are based on ad revenue of $46.7$ billion (Newspaper Association of America, Facts About Newspapers, 2005), with 70% of ad revenues coming from display ads (Belch & Belch, 2004) and 90% of display ad revenues coming from ads 17 square inches or larger in size.

### TABLE 3

<table>
<thead>
<tr>
<th>Scarcity technique used</th>
<th>Sales announcement</th>
<th>Color</th>
<th>Full-page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Used (%)</td>
<td>Not used (%)</td>
<td>Used (%)</td>
</tr>
<tr>
<td>Limited time appeals</td>
<td>1103 (47.0%)</td>
<td>1242 (53.0%)</td>
<td>657 (28.0%)</td>
</tr>
<tr>
<td>Limited quantity</td>
<td>368 (42.4%)</td>
<td>499 (57.6%)</td>
<td>229 (26.4%)</td>
</tr>
<tr>
<td>Purchase restrictions</td>
<td>162 (37.0%)</td>
<td>276 (63.0%)</td>
<td>204 (46.6%)</td>
</tr>
</tbody>
</table>

\(^c\)Row percentages.
expectations from the framing literature. Although the stronger persuasive nature of a loss frame versus a gain frame has long been recognized, this study is the first to document that this relationship translates into frequency of use statistics in the marketplace. Our findings are also consistent with analyses of fraud operations in which scarcity and comparison tactics (similar to our reference pricing) are among the most frequently used techniques in confidence scams (Pratkanis & Shadel, 2005; Pratkanis et al., 2006), with scarcity being the more heavily used of the two tactics.

Overall, we believe this study supports the position that scarcity appeals and reference pricing are used in a manner designed to facilitate greater processing and persuasion of retail display ads. Specifically, our analysis provides evidence that compliance practitioners believe in the effectiveness of using multiple influence techniques. The finding that scarcity appeals and reference pricing are themselves associated, and coincidently used with color ads, large ads, and sale announcements, is consistent with the position that retailers employ these techniques simultaneously to differentiate their ads from those of competitors in a cluttered newspaper advertising environment, with the objective of heightening purchase probabilities. The tendency to use scarcity and reference pricing in color ads and larger ads also indicates that these techniques are more commonly used in costlier advertisements, arguably representing more important promotional events.

The fact that the use of scarcity is dominated by limited time appeals appears important since no literature has empirically documented the relative usage of different scarcity variations. However, since practitioners seem to prefer limited time to other scarcity versions, the question is why? One possibility is that “limited time” is easily accomplished by virtue of administrative fiat and appears to run few risks of consumer or legal complaints. By contrast, the next most frequent scarcity variation—limited quantity—seems more vulnerable to being both challenged and subject to verification. Purchases restrictions, on the other hand, appear more limited in terms of product/service applicability (e.g., we observed no purchase quantity limits on cars, consumer electronic products, or telecommunication products or services). Also note that the limited time and limited number scarcity variations we examined are directly analogous to the time and product scarcity ploys used in confidence crimes (Pratkanis & Shadel, 2005; Pratkanis et al., 2006), indicating that these techniques are influential in domains beyond the one examined in this study.

Empirical studies are needed documenting whether favorable persuasive effects result from the simultaneous use of multiple influence variables. For example, Howard and Kerin (2006) demonstrated that the joint use of reference pricing and limited time availability in newspaper ads can have additive persuasive effects on price attitudes and store shopping intentions. Additive persuasive effects of sale announcements and limited time
availability were also found. To our knowledge, no research has yet examined whether reference pricing, scarcity appeals, or sale announcements are more persuasive with ad color or size. The effects of using the techniques in different positions of an ad (headline, body copy, and footnote) have also not yet been examined. Previous research has shown that the position of information within a message can have an important persuasive effect (Burnkrant & Howard, 1984; Howard, 1990). Another line of research that might be explored is why color ads, larger ads, and reference pricing are used more frequently with purchase restrictions, which were the least common of all the scarcity variations examined. Whether relative infrequency of use in itself heightened the perceived need for additional attention/persuasion devices being included in those ads is one possible explanation.

We hope this study will stimulate research on the use of multiple influence techniques in a broad sense. Although academic research is often multivariate in nature, greater attention needs to be given to techniques used by compliance practitioners rather than theoretical variables largely irrelevant to the art of influence in the marketplace. A host of possibilities remain to be explored. For example, under scarcity conditions such as limited time, would reciprocity and/or authority influence be accentuated, or would effects, if any, depend on the presence of moderating contextual or source-relevant variables?

One limitation of this research is that an examination of techniques in retail display ads may not be representative of their use in other advertising media. We leave this question for future research. In the meantime, this study provides a foundation that documents in one major medium the extent of use and relationships between commonly employed message strategies designed to convince consumers how and where their money should be spent.

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REFERENCES


