

USE OF INTERNAL REFERENCE PRICES FOR DEAL EVALUATIONS: DECISION STRUCTURE AND ROLE OF INVOLVEMENT

RAJIV VAIDYANATHAN, *University of Minnesota Duluth*

PRAVEEN AGGARWAL, *University of Minnesota Duluth*

Price information is a key influencer in consumer decision-making. Consumers compare prices with their reference prices (both external and internal) to assess the value of an offer. In this study, we examine the role of involvement in the usage of internal reference prices (IRP). Using a two-dimensional operationalization of the IRP construct, we empirically demonstrate that high-involvement customers use market-based IRPs whereas low-involvement customers use aspiration-based IRPs. We then examine the structure of relationships between IRPs, perceived value of the offer, perceived shop-around savings, and purchase intention. Again, we find interesting differences between the low- and high-involvement groups. The standard of comparison varies across times and situations. Managerially, our results suggest that advertising price specials may not always be the best way to elicit favorable responses from consumers who have low levels of product involvement.

INTRODUCTION

Numerous studies have established the importance of price as a key variable influencing the purchase decision (see, e.g., Berning and Jacoby 1974). Information on price constitutes 40 percent of the information consumers seek for decision-making (Jacoby et al. 1976). Research has also shown that consumers acquire price information to compare it to their individual reference price levels. Depending on how the advertised price compares with this reference price, consumers decide whether or not to buy a product.

The *extent* to which consumers utilize available information (including price information) depends on their involvement with the purchase decision. Also, involvement has been recognized as a variable of fundamental import in determining what *kind* of information customers pick to process and *how* they process the chosen information (Petty and Cacioppo

1986; Gotlieb and Dubinsky 1991). An important component of information available to consumers in the shopping environment is price information. Consumers have access not only to seller-provided price information, but also to their own internal reference prices. In this study, we examine the use of internal reference prices (IRP) under conditions of high and low involvement. We use a multidimensional operationalization of the IRP construct that builds on the work of Klein and Oglethorpe (1987) and examine the differential use of these dimensions under conditions of high vs. low involvement.

Several researchers have also examined *how* reference prices affect purchase intentions and behavior. Different structures of relationships between reference prices, perceived value of an offer, perceived shop-around savings, and purchase intentions have been suggested in the literature. We also examine, in a descriptive sense, if these structural relationships vary under conditions of low vs. high involvement. Thus, this study addresses two research questions:

- Do consumers use different types of IRPs under conditions of low vs. high involvement
- Does the decision structure for deal evaluation (i.e., the way IRPs influence purchase intentions) vary under conditions of low vs. high involvement?

The rest of this paper is organized as follows. First, we discuss different types of IRPs and their roles in offer evaluation. Next, we discuss the impact of involvement on the use of different types of IRPs. Then, we review three possible structures outlining how IRPs may impact purchase intentions. Finally, we provide a discussion of methodology, results, and implications of the study.

INTERNAL REFERENCE PRICE AND OFFER EVALUATION

A sizable body of theoretical and empirical work in the area of behavioral pricing has established that consumers use some sort of an internal reference price to evaluate deals they encounter in their shopping environment. Recent research in marketing has established the role of external reference prices and advertised selling prices in influencing consumers' internal standards and consequent deal evaluation (Grewal, Monroe, and Krishnan 1998). However, despite the fact that the IRP construct forms the cornerstone of behavioral price research (Grewal, Monroe and Krishnan 1998), very few studies have examined the role of IRP in deal evaluations. In a comprehensive review of the literature, Biswas, Wilson, and Licata (1993) could find only one such study.

Researchers have also argued over the multidimensionality of IRP. Klein and Oglethorpe (1987) suggested that IRPs could be based on market prices, historical prices, or aspiration prices. Chandrashekar and Jagpal (1995) demonstrated that multiple internal reference prices directly influence perceived offer value and that the utilization of these prices is different for different product categories. Another study attempting to distinguish between the various IRP measures (Bearden et al. 1992) found a great deal of overlap

between the various operational measures of IRP. They also found a great deal of variance in the "fair price" estimates provided by their subjects and suggested that subjects interpreted "fair" price quite differently. In this paper, we explore the question of whether consumers form and use estimates of IRPs differently based on differences in individual and contextual factors. Although there has been some recent research suggesting that consumers may not store price information in a numeric format (Monroe and Lee 1999), there has been a strong research tradition in reference price studies to operationally measure consumer reference points numerically.

There has been some suggestion in the literature that a variety of factors in the environment may affect IRPs and that these factors may affect consumers in different contexts differently (e.g., Biswas 1992). Briesch et al. (1997) suggested that consumers shopping in different categories might use different IRPs in forming judgments. They found that in most cases consumers used a brand-specific past price (a memory-based price) as a reference price. However, in the liquid detergent category, a stimulus-based reference price (a price available in the immediate shopping environment) estimate resulted in better model fit. They suggested that it "... is possible that some consumers of this category may neither remember nor feel motivated to use *past prices* as the reference price for price judgments." (p. 213) (emphasis added). Mazumdar and Papatla (1995) found that brand loyalty was one consumer characteristic that influenced whether consumer deal evaluations were based on past prices or current observed market prices. Rajendran and Tellis (1994) also suggested that buyers' evaluations depend not only on the advertised prices, but also on contextual cues presented in the ad and situational influences. Building on this, Grewal, Monroe, and Krishnan (1998) showed a positive relationship between advertised selling price and buyers' internal reference price. In an ad with an external reference price, they showed that both the external reference price and the advertised selling price affected deal evaluations through their effect on IRP. Thus, research has shown a multitude of factors that affect reference price usage. In this study, we examine the

role of consumer involvement in understanding the impact of IRPs on deal evaluations.

Both adaptation-level theory and assimilation-contrast theory, which have been used as theoretical bases for explaining reference price effects, seem to suggest that the IRP used by consumers to evaluate a deal is some function of past observed prices. For the purposes of this research, we use Klein and Oglethorpe's (1987) classification of reference prices into three types-- aspiration prices, market prices, and historical prices. Aspiration price is the price that a consumer "consciously establishes" as goal or a target to pay for that product. Market price is based on consumer perception of the price level in the marketplace (Urbany and Dickson 1991). Historical price is based largely on "consumer's purchase experience."

As recognized by Klein and Oglethorpe, there can be an overlap between these three IRP conceptualizations. Particularly, historical prices can have a strong influence on consumers' market price and aspiration price estimates. For example, if a consumer has encountered a product priced at \$9.99 on five previous purchase occasions (historical price), this is likely to influence his or her perception of the usual selling price for that product (market price). Thus, in order to minimize the impact of construct overlap between historical and market prices on our research analysis, we delete historical market prices from our framework and examine the impact of only two of the three IRP types-- market internal reference price (MIRP) and aspirational internal reference price (AIRP). This also helps minimize the overlap in the operational definition of these constructs.

We do recognize that there is still a possibility of an overlap between MIRP and AIRP. Given that both these constructs exist in the mind of the consumer, it would be impossible to disentangle the two completely. However, there does exist a conceptual distinction between the two. Whereas MIRP is the "reality" that a consumer faces in the marketplace, AIRP is the "ideal" that a consumer wishes for. In the context of pricing, it is not uncommon that the two would coincide. In fact, a transaction is most

likely to occur only when the two have an overlap. Thus, the two IRPs are conceptually distinct constructs although estimates of the two may overlap.

PRODUCT INVOLVEMENT AND USE OF IRPS

Research has shown that "involvement" is an important moderator of the amount and type of information processing elicited by a stimulus (cf. Burnkrant and Sawyer 1983). However, involvement in the processing of price information has received limited attention (cf. Helgeson and Beatty 1987; Gotlieb 1990; Gotlieb and Dubinsky 1991).

Inman, McAlister and Hoyer's (1990) study on the effect of promotional signals used the theoretical base of Petty and Cacioppo's (1981, 1986) Elaboration Likelihood Model (ELM) to explain how promotional signals influence consumer judgments. According to the ELM, various attitude formation processes can be classified into two types: those that take considerable effort/cognitive resources (the "central route") and those that require little thinking (the "peripheral route"). When processing-motivation, ability, and opportunity are high, individuals engage in central route processing, focusing and elaborating on cues relevant to the true merits of the issue. In contrast, consumers who lack the motivation, ability, and/or opportunity to evaluate the true merits of the issue engage in less effortful processing and use peripheral cues to form attitudes. Consistent with MacInnis and Jaworski's (1989) assertion that involvement influences consumers' motivation and ability to process information, Petty, Cacioppo, and Schumann (1983) found that low involvement consumers used a peripheral route to persuasion whereas high involvement consumers used a central route to persuasion.

Helgeson and Beatty (1987) were among the first researchers in marketing to recognize the role of involvement in the processing and recall of *price* information. They found that when involvement was high, subjects engaged in more deliberate

processing and evaluation of price and put less emphasis on expectations. While their study provides empirical support for the role of involvement in the processing of price information, another study by the same authors (Helgeson and Beatty 1985) provides a detailed conceptual scheme for the processing of price stimuli. Their model suggested that the process by which an observed price is stored as a psychological price (internal reference price) may depend on a processing continuum ranging from automatic, context driven, effortless processing on one hand to deliberate, data driven, effortful processing on the other.

In the context of price promotions, the price cuts and signals could be viewed as persuasive appeals aimed at influencing consumer evaluations of the deal. When involvement is high, a consumer taking the effortful central processing route would go beyond mere promotional signals to evaluate the actual difference between the offering price and the relevant market prices (data driven processing). On the other hand, low involvement consumers taking the peripheral processing route, would give more weight to simple inferences or cues in the persuasion context than to actual product attributes or message arguments (context-driven processing). Rather than explicit price comparisons, subjective perceptions of the likelihood of finding a lower price may have a greater impact on the responses of low-involvement consumers. The effect of this "non-price driven response" was tested by Inman, McAlister, and Hoyer (1990) in an artificial supermarket setting, where it was found that high need-for-cognition (NFC) subjects, who were intrinsically motivated to engage in cognitive endeavors, reacted to a promotional signal only when it was accompanied by a substantive price reduction, while low NFC individuals reacted to the simple presence of a promotional signal.

As stated previously, MIRP more closely reflects the market "reality" and therefore is more data driven compared to AIRP, which more closely captures the context or "ideal" price. When consumers' involvement and, consequently, motivation are high and they have the ability to process information, they will cognitively process the price information and use

the more relevant market (data driven) price estimates (MIRP) to evaluate the deal. As noted by Alba and Hutchinson (1987), effortful analytic processing (as opposed to nonanalytic processing) is characterized by search that extends beyond the most accessible information and the ignoring or discounting of irrelevant information. In the context of deal evaluations, high-involvement consumers can be expected to engage in analytic processing where the internal reference price inferences are based on logically relevant facts. These evaluations will go beyond the immediately available information and extend to references based on market prices (MIRP). On the other hand, low-involvement consumers are likely to use internal reference prices based on nonanalytic inferences that are characterized by heuristic connections between known and inferred facts (based, for example, on promotional signals in ads, estimates of product quality, etc.). Thus, they are more likely to use the less analytic "what I want" reference price (the AIRP) rather than the more cognitive intensive "what the market is offering" reference price (MIRP). This leads us to the two main hypotheses of our study:

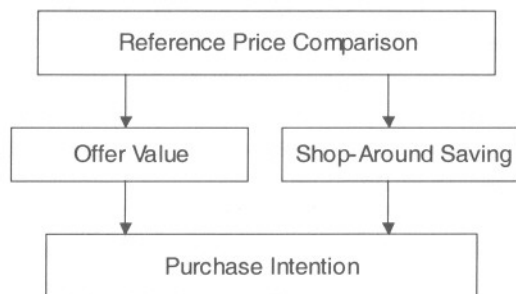
- H₁:** Under conditions of low involvement, consumers will compare the deal price to AIRP to evaluate an offer.
- H₂:** Under conditions of high involvement, consumers will compare the deal price to MIRP to evaluate an offer.

OFFER VALUE, SHOP-AROUND SAVING, AND PURCHASE INTENTION

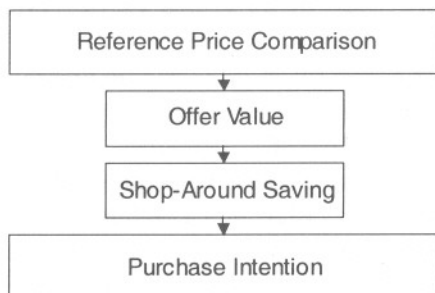
The impact of reference price has frequently been examined on three key variables-- perceived value of the offer (VALOF), perceived shop-around saving (SAS), and purchase intention (Berkowitz and Walton 1980; Blair and Landon 1981; Della Bitta, Monroe, and McGinnis 1981; Lichtenstein and Bearden 1988). The value of an offer has often been understood in terms of Thaler's (1985) acquisition and transaction utilities. Acquisition utility is the gain of pleasure from buying and using a product whereas transaction utility refers to the

value or merit of an offer or deal. The magnitude of the difference between a consumer's IRP and deal price determines the transaction utility. Shop-around saving is the difference between the offer the consumer has in her hand, and the best offer she believes she can get if she were to shop around in the marketplace (Urbany, Bearden, and Weilbaker 1988). We use the terms "purchase intention" and "willingness to buy" interchangeably.

Despite the number of studies that have examined the relationships between these four variables, there is considerable difference of opinion regarding the exact structure of these relationships. For example, Biswas and Blair (1991) postulate that the reference price affects both VALOF and SAS and these variables then independently affect purchase intention. On the other hand, Urbany, Bearden, and Weilbaker (1988), proposed a linear model wherein VALOF affected shopping intention through SAS. The two models can be summarized as follows:



Structure 1: Based on Biswas and Blair (1991)



Structure 2: Based on Urbany et al. (1988)

In a comprehensive review article, Biswas, Wilson and Licata (1993) propose a third possible structure. They propose that the shop-around savings affect the value of an offer instead of the other way around. This is possible because "consumers may compare the offering price of a brand to its expected lowest available price to arrive at an evaluation of value" (p. 243). Thus, consumers may first assess the possibility of finding a better deal and then determine the value of a given deal. This leads us to a third possible structure of relationships between these variables:



Structure 3: Based on Biswas, Wilson, and Licata (1993)

We investigate the structure of relationships between these variables for two reasons. First, from an academic standpoint, it would be interesting to empirically test which structure holds under what conditions. For example, it is possible that consumers use different structures under different personal and contextual circumstances. This may help reconcile different structures proposed in the literature. Second, from a managerial standpoint, it would be interesting to examine if SAS alone could influence purchase intention without influencing VALOF. This could be explained with the help of a hypothetical (and therefore, somewhat unrealistic) example. Assume all retailers in a town increase their prices for a particular product by 20 percent for one day. Now, if one of these retailers offered a 10 percent discount (thereby creating tremendous SAS, but still not a good VALOF), will this offer disproportionately attract some customers? The likelihood is that it will; those who use Structure 1 will use SAS independent of VALOF and can

therefore have more positive evaluations of the offer. On the other hand, those who factor in VALOF (especially those using Structure 3) are likely to tone down their favorable assessments of the offer because of the impact of VALOF.

We believe that the evaluation structure would vary depending on the level of involvement of consumers. High involvement customers with well-developed schemas are likely to evaluate a deal more objectively. They are likely to assess the overall value of a deal using a multitude of variables and then arrive at a purchase decision. Thus, they are more likely to follow Structure 2 or 3 where they form an overall evaluation of a deal which then affects their purchase intention. On the other hand, for low-involvement customers, the decision criteria are not that well-formed. Therefore, they are likely to use secondary cues (along with perceived value of offer) to determine if they want to buy a product (Structure 1). For example, consider a (low-involvement) customer who encounters a used exercise machine for \$50 in a garage sale. Even though this person is unable to assess the value of the offer, s/he may still buy the machine, as s/he is unsure if something better would be available elsewhere. Thus, SAS can affect purchase intention independent of VALOF for low-involvement customers. As theoretical explanations in this area are lacking, we keep this part of our model exploratory. Thus, we propose that the relationship structure will vary between low- and high-involvement consumers, but do not conjecture on the exact structure.

H₃: The structure of relationships between reference prices, value of the offer, shop-around savings, and purchase intentions will vary between low and high involvement consumers.

METHOD

Sample Characteristics

Subjects for this study were students enrolled in the Principles of Marketing class at a large western university. The use of an undergraduate student

sample for this study was justified on the basis of a need for a homogeneous group for theory testing (Calder, Phillips, and Tybout 1981).

Data were collected from four class sections resulting in 411 valid questionnaires that were used to test the model. Males constituted approximately 56 percent of the sample. Over 92 percent were between the ages of twenty and twenty-four, and over 97 percent of the sample were either Juniors or Seniors.

Advertisement Stimulus

To establish a context within which consumer responses to an advertised price can be measured and evaluated, a realistic advertisement stimulus (comparable to a published ad) was created that presented a shopping good with an "offering price" and asked consumers to evaluate the advertised deal. Consistent with most previous reference price studies that have used a shopping good, the product used was an automatic drip coffee maker. The coffee maker was selected on the basis of a pretest, which showed the coffee maker to have the maximum variance on the involvement construct. This is similar to the procedure used in other studies looking to classify subjects on the basis of a moderating variable (cf. Biswas and Sherrell 1993). The advertised price was picked on the basis of the median price estimates for the product on the pretest which was conducted earlier using different subjects. This price (of \$22.99) was also compared to the actual price for the item and found to be realistic. A "real" brand was used (Westbend) rather than a fictitious brand in order to ensure that responses to questions on market price estimates were meaningful. It makes little sense to measure subjects' "market price" estimates for a nonexistent brand.

Procedure

Data were collected from four separate class sections. Each subject was presented with a booklet that contained the advertisement stimulus and several questions. Subjects' level of product involvement was measured before their exposure to

the ad stimulus. Following exposure to the advertisement, subjects were asked their judgments of the likelihood of finding a lower price (SAS), the value of the offer (VALOF), their willingness to buy the advertised product, and finally their various price standards. The price standards were measured *after* measuring consumer evaluations of the deal (value of offer, willingness to buy, etc.) so that subjects were not forced to retrieve their market price estimates before they evaluated the deal. In effect, the IRPs measured here are the revised estimates, influenced by cues in the purchase environment. This, however, is no different than "real world" deal evaluations, where consumers evaluate advertised deals based on comparisons with internal standards that are revised after exposure to the offering price. Although all subjects were asked to provide both market- and aspiration-based prices, it was hypothesized that subjects would base their deal evaluations on MIRP or AIRP depending on their level of involvement.

Measures of Variables

Price Estimates. The variables that formed the internal reference price in this study are (a) fair price, (b) most that you would pay, (c) lowest market price, (d) most likely market price, and (e) normal price. The difference between the price estimates and the offering price formed the price savings estimates that were expected to influence consumer evaluations. Consistent with Klein and Oglethorpe (1987), the first two price estimates were used as measures of AIRP and the remaining three measured the MIRP. All the price estimates were measured using open-ended questions that have been used in prior research (cf. Lichtenstein and Bearden 1989). Respondents were asked to provide point estimates for their price standards using open-ended questions. Urbany and Dickson (1990) found that over half of the respondents provided point estimates when told they could provide either point estimates or range estimates. Those respondents were also just as confident about their point estimates as the range estimates.

Multi-Item Scales. Using pretest data, a five-item seven-point scale was developed to measure the likelihood of finding a lower price (SAS). After

scanning the literature, and developing a list of possible items to measure consumer perceptions of the likelihood of finding a lower price, five items were selected that had the most face validity. The scale was administered to 232 subjects in a pilot study and the results were factor analyzed to determine the convergent validity of the measure. All items loaded on a single factor. All five items were included in this study (see Appendix). The constructs of VALOF and SAS were empirically distinct. A factor analysis with the items on these two scales showed a two-factor solution. The factor loadings are presented in Table 1.

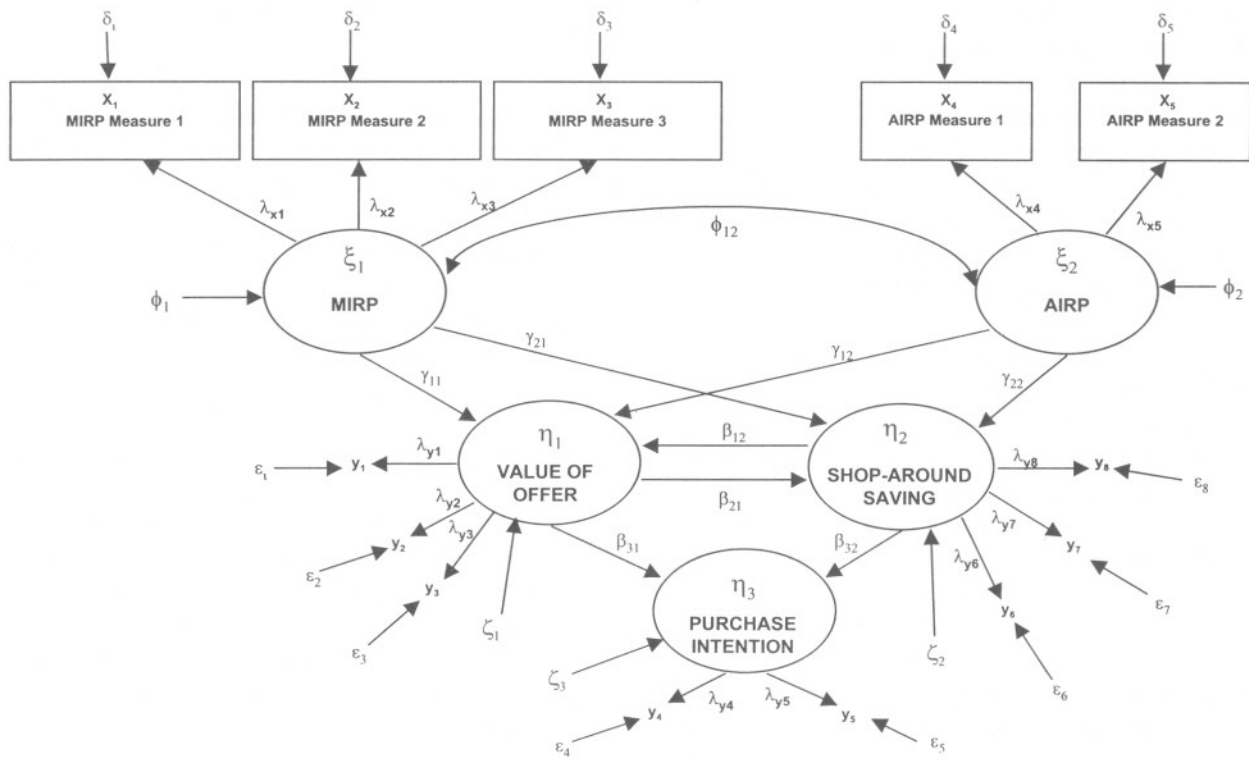
TABLE 1
Factor Analysis of VALOF and SAS Scales

Item	Factor 1	Factor 2
VALOF1	0.821	0.140
VALOF2	0.822	0.224
VALOF3	0.708	0.185
VALOF4	0.742	0.145
VALOF5	0.564	0.362
VALOF6	0.684	0.319
SAS1	-0.246	-0.606
SAS2	-0.304	-0.750
SAS3	-0.156	-0.848
SAS4	-0.183	-0.848
SAS5	-0.204	-0.814

Items used to measure involvement, value of offer, and willingness to buy were drawn from previous research and are detailed in the appendix.

Scale Reliability. After performing a factor analysis that revealed strong internal consistency (convergent validity) for the primary scales used in this study, Cronbach's coefficient alphas were calculated to further assess the reliabilities of all the scales used in these analyses. The coefficient alphas for the three scales of the dependent variables were .86, .85, and .90 for the measures of SAS, VALOF, and willingness to buy the product, respectively.

FIGURE 1
STRUCTURAL MODEL OF EXPECTED
INTERNAL REFERENCE PRICE EFFECTS



DATA ANALYSIS

The entire model (see Figure 1) was first empirically tested using LISREL 7 (Jöreskog and Sörbom 1989). The indicators of the latent constructs were composites of individual scale items. For example, the six items on the "value of the offer" scale were split into three subscales of two items each to provide multiple indicators of the latent construct. This resulted in three indicators each for SAS and VALOF, and two indicators for the endogenous variable "willingness to buy." MacKenzie and Lutz (1989, p. 58) provide three advantages to using the composite indices over the individual scale items:

The principal advantages of this way of modeling the [constructs] are (1) it improves the distributional properties of the latent construct indicators, (2) it prevents changes in the structural portions of the model from affecting the empirical definitions of the constructs (i.e., it prevents interpretational confounding from being a problem), and (3) it simplifies the analysis and reporting of results.

The model was identified and, therefore, all parameters could be uniquely estimated. In addition to the χ^2 measure, the Goodness of Fit Index (GFI), the Adjusted Goodness of Fit Index (AGFI), the Population Gamma Index (PGI), the Adjusted Population Gamma Index (APGI), the Bentler-Bonett Normed Fit Index (NFI), the Non-Normed Fit Index (NNFI), and the Bentler Comparative Fit Index (CFI) were used to assess model fit.

To evaluate the role of involvement in the use of internal reference price estimates, subjects were split into low and high involvement groups. The hypothesized model was fitted and analyzed separately for the two groups before a two-group analysis was performed to test for statistically significant differences in the pattern of relationships between the two groups. Although involvement was measured as a continuous variable, a median split effectively converted it into a discrete variable. This is consistent with James and Brett (1984) who suggested that continuous variables be rescaled as discrete for analysis of moderating variables in

structural equations modeling. A median split was used to divide the sample into low and high involvement consumers. This allowed for comparison among relatively equal sample sizes for the LISREL analysis. The sample median coincided with the mid-point of the scale (4.0).

Based on the median split, on the composite Personal Involvement Inventory (Zaichowsky 1985) a score of four or more (on a seven-point scale) was considered high involvement. A subject with an involvement score less than four was classified as low involvement. The full LISREL model specified earlier was fitted for each data set separately to examine the differential impact of MIRP and AIRP on deal evaluation for low vs. high involvement subjects.

In order to test Hypothesis 3, Structure 1 was hypothesized as the null structure (with relational arrows between SAS and VALOF going in either direction). This was done because Structures 2 and 3 are nested in Structure 1. Thus, for example, we will find support for Structure 2 if the relationships between MIRP/AIRP and SAS, VALOF and purchase intention, and SAS to VALOF turn out to be insignificant.

RESULTS

The complete model showed a good fit to the data. Although the χ^2 measure was statistically significant (χ^2 with 57 d.f. = 136.09; $p < .01$), all the fit indices indicated an excellent fit (GFI=.948; AGFI=.916; PGI=.968; APGI=.950; NFI=.940; NNFI=.950; CFI=.964). To establish the multidimensionality of the IRP construct, a χ^2 difference test was performed. The complete model was run with Φ_{12} fixed at 1. The resulting χ^2 with 58 degrees of freedom was 292.34. When compared to the model χ^2 when Φ_{12} was allowed to be free, the χ^2 difference (with 1 d.f.) was a highly significant 156.25. Substantively, this showed that the correlation between the two dimensions of internal reference price (MIRP and AIRP) was significantly different from 1. Although this is a relatively weak test of the discriminant validity of the two reference price constructs, the theoretical justifications

combined with the different influence patterns (discussed next), provide a strong case for the fact that these two latent internal reference price constructs are distinct.

Also, all the coefficients had expected signs. Thus, a favorable assessment of deal price (AIRP or MIRP - deal price) was negatively related to SAS and positively to VALOF. Similarly, the possibility of finding a better deal (SAS) had an inverse relationship with the perceived value of the deal on hand (VALOF). SAS also had a negative influence on purchase intention. A favorable assessment of the value of the offer (VALOF) was positively related to purchase intention.

Deal Evaluation Under Low Involvement

The model was fitted to 212 subjects who were categorized as "low involvement" subjects. Overall, the model showed a good fit to the data with high fit indices (χ^2 with 57 d.f. = 122.99; $p < 0.05$; GFI = .918; AGFI = 0.868; PGI = .956; APCI = .930; NFI = .899; NNFI = .921; CFI = .942). An examination of the t -values showed that the MIRP comparisons did not have any significant influence on the deal evaluation variables in the low involvement condition, thereby lending support to Hypothesis 1. AIRP, on the other hand, had a statistically significant effect on both likelihood of finding a lower price (SAS) and value of offer (VALOF). Both these variables, in turn, influenced willingness to buy the product. The significant relationships are presented in Table 2. Further, consumers' subjective judgments of SAS directly influenced their willingness to buy the advertised product, thereby lending support to Structure 1.

Deal Evaluation Under High Involvement

One hundred and ninety-nine subjects fell into the "high involvement" category. The model was fit separately for these subjects. The fit was excellent (χ^2 with 57 d.f. = 77.23; $p = 0.038$; GFI = .940; AGFI = .905; PGI = .984; APCI = .974; NFI = .928; NNFI = .972; CFI = .980). As hypothesized, the t -values showed no statistically significant effect for the AIRP comparison on deal evaluation among the

high involvement subjects. The statistically significant relationships are shown in Table 2. As expected, high involvement subjects based their evaluation of the deal on their MIRP estimates, thereby supporting Hypothesis 2. Also, consumer willingness to buy was no longer directly influenced by subjective judgments of the likelihood of finding a lower price (SAS). However, the SAS construct mediated the influence of the MIRP on value of the offer (VALOF). MIRP did not have any direct effect on VALOF. Substantively, this means that when involvement with the product was high, subjects used their MIRP estimates to form judgments of the likelihood of finding a lower price, which in turn formed the basis for the evaluation of the offer being presented. Thus, Structure 3 was supported under high involvement condition.

TABLE 2
Structural Model Relationships
And Fit Measures

Relationship	Low Involvement	High Involvement
AIRP → SAS	-0.457*	-0.240
AIRP → VALOF	0.553*	0.141
MIRP → SAS	-0.311	-0.583*
MIRP → VALOF	0.048	0.103
SAS → VALOF	-0.156	-0.236*
SAS → INTENTION	-0.263*	0.039
VALOF → INTENTION	0.579*	1.224*
χ^2 (57 DF)	122.99	77.23
GFI	0.918	0.940
AGFI	0.868	0.905
PGI	0.956	0.984
APGI	0.930	0.974
NFI	0.899	0.928
NNFI	0.921	0.972
CFI	0.942	0.980

* $p < 0.05$

DISCUSSION

Despite the assumption in the reference price literature that consumers evaluate deals relative to some internal price standard, most prior research on reference price effects has focused on the influence of external reference prices on consumer judgments.

This study investigated the dimensionality of the IRP construct and presented a model illustrating the conditions under which each dimension is influential in price judgments. The propositions of the model were tested and found to be empirically valid suggesting that (1) involvement affects how consumers use internal reference price standards to evaluate a deal; and (2) the structure of influence of IRPs on deal evaluation varies between low and high involvement customers.

Role of Involvement

In order to use market-based IRP, consumers have to have not only well-formed estimates of market prices, but should also have the motivation and desire to process this information. This ability and/or motivation to process information are a direct function of a person's involvement in that purchase decision (MacInnis and Jaworski 1989). As hypothesized, when involvement was low, subjects used their AIRP to evaluate a deal.

On the other hand, when involvement was high, subjects chose to use the more cognitive-intensive MIRP estimates to evaluate a deal.

Influence Structure

In a previous section, we outlined three possible structures of relationship between IRP comparisons, VALOF, SAS, and purchase intention. In an exploratory sense, we expected a linear relationship in the case of high-involvement subjects and a dual-effect (both SAS and VALOF affecting purchase intention independently) relationship for low-involvement subjects. We find empirical support for this. The following two structures were supported by our data:

In a sense, this study provides some preliminary evidence to reconcile the findings of Biswas and Blair (1991) and Urbany, Bearden, and Weilbaker (1988). The former had proposed a dual-effect relationship whereas the latter were in favor of a linear relationship model. Our results suggest that the structure of the relationship varies depending on the level of involvement. Biswas and Blair (1991)

model applies to low involvement customers whereas Urbany, Bearden, and Weilbaker (1988) model, after incorporating the modification suggested by Biswas, Wilson and Licata (1993), finds support for high involvement subjects.



MANAGERIAL IMPLICATIONS OF THE STUDY

At a theoretical level, this study has reaffirmed that internal reference price may usefully be considered a multidimensional construct. The standard of comparison used by consumers to evaluate a particular offering price appears to be influenced by individual differences including product involvement. Researchers examining reference price effects stand to benefit by considering not only the fact that consumers compare an offering price to an IRP, but also that the standard of comparison may vary across times and situations. In this study, we operationalized IRP as a two-dimensional construct and found that customers use the two dimensions differently.

The empirical result concerning involvement's effect on consumers' use of different IRPs also has implications for retailers advertising store specials. Depending on their level of involvement, consumers encountering an advertised price will evaluate the deal using different price standards. Low involvement consumers are likely to base their evaluation of the deal on their AIRP standards. If this results in a more unfavorable evaluation of the advertised deal, it may influence their judgments of other prices at the store. That is, if aspiration price estimates are, in general, a "stricter" standard against which to evaluate a deal, low involvement consumers may view specific advertised prices more negatively than high involvement consumers. In fact, we found that low involvement consumers judged the value of the offer to be significantly lower than high involvement consumers did (mean: 4.91 vs. 5.34; $p < .01$).² Thus, advertising price specials seem to have a greater impact on consumers with a high level of involvement with the product.

The findings reported here on the role of "likelihood of finding a lower price" (SAS) provides support for earlier findings on the importance of competitor prices in consumer deal evaluations (Biswas and Blair 1991; Lichtenstein, Burton, and Karson 1991). Even when involvement is high, consumers use a judgment of the likelihood of finding a lower price to determine the value of the present offer. Substantively, this adds to the evidence supporting the importance, to retailers, of emphasizing how an advertised price compares to other prices around town rather than simply comparing prices to their previous prices. This finding assumes added significance as consumers get more used to buying goods over the Internet and bring prices from that domain into their mental accounting. Retailers will increasingly have to convince their customers that their prices are competitive not only in the local market, but also in the much bigger world of e-commerce. Another implication of this finding that can be addressed in another study is in the field of diffusion of innovations and new products. If consumers expect prices to fall in the very near

future, they will be less likely to adopt a new product because the SAS value would be high for such products. Thus, SAS is likely to have a spatial as well as a temporal component.

An interesting finding of our study was the varying structure of relationships between different variables. We found that although IRP comparisons influenced SAS for both groups, the way SAS information was utilized to arrive at a purchase decision was different between the two groups. The high-involvement group incorporated SAS information in determining the overall value of the offer. For the low-involvement group however, SAS had a direct influence on purchase intention independent of the value of the offer. This has interesting managerial implications. Retailers have long used time-bound semantic cues in advertisements (e.g., "One Day Only" or "Six Hour Sale") to accelerate purchase. Although such semantic cues may have no effect on IRP, they may still affect deal evaluation through their effect on SAS (cf. Jacobson and Obermiller 1990). In an interesting study, Aggarwal and Raj (1996) found that time-limited retail promotions (such as store coupons that are valid only for a week) were more effective in accelerating purchases than other promotions (such as manufacturer coupons with a much longer validity). Results from our study indicate that the impact of such semantic cues would be greater on low-involvement customers as SAS impacts their purchase intentions directly. High-involvement customers, on the other hand, are less susceptible to such promotions as the impact of SAS gets moderated by the perceived value of the offer in their case. Thus, there is some preliminary evidence to suggest that high-involvement customers form a summary assessment of an offer whereas low-involvement customers may still be simultaneously using multiple cues to form a purchase opinion without coalescing all available information into a comprehensive assessment.

LIMITATIONS AND FUTURE RESEARCH

Although the results of this study provide insights into the process by which consumers evaluate a deal on the basis of price, there are some limitations that

² This result could be because of low-involvement consumers "low-balling" the price because of their lack of interest in the product category.

should be acknowledged here that may provide directions for further research on the use of internal reference prices.

Involvement was measured in this study but not manipulated. Future research may want to consider manipulating involvement. The product used in the advertisement stimulus was selected on the basis of a pretest that showed it to have maximum variance in terms of involvement. However, testing the moderating role of involvement may be better performed if involvement is manipulated so that subjects are experimentally manipulated to be in either a low or high involvement group. Also, we examined only enduring involvement in this study. It is conceivable, however, that situational involvement may affect the constructs included in the study in a different way.

Another issue for future research is the examination of internal reference price use independent of prior brand perceptions. Lichtenstein, Burton, and Karson (1991, p. 386) used a product with a fictitious brand name in their study of the effect of semantic cues in reference price ads on price perceptions. Their primary dependent variables were the same as the ones used in this study and were operationalized similarly. While the use of a fictitious brand name may minimize the effect of prior brand perceptions, it poses significant problems for the validity of the measures for the price estimates. If the brand is completely fictitious, it makes it harder for subjects to provide historical and market price estimates. Since an objective of this study was to examine the influence of subjects' price knowledge on their internal reference price estimates, it was decided to take the tradeoff in favor of construct validity and use an existing brand name. The use of an existing brand also, incidentally, enhances the external validity of the results to an extent. The effect of this decision is that prior brand perceptions could have influenced some of the results, or lack of them, in this study. The position taken in this study is that measuring historical and market price estimates could be sub-optimal when the stimulus is a nonexistent brand name. However, variation in brand familiarity across subjects was not controlled for in this study.

Another worthwhile area of future research is the examination of the "likelihood of finding a lower price" (SAS) variable, which was found to mediate the influence of internal reference price effects on deal evaluation. The finding, that when involvement is high, consumers use internal reference prices primarily to make a judgment of the likelihood of finding a lower price rather than directly evaluating the value of the deal, needs to be further examined. Prior research has assumed that the comparison of the offering price with the internal reference price results in an evaluation of the "value" of the deal.

Lastly, future research may benefit considerably from the model tested here in terms of the importance of the SAS construct. An example would be research on consumer perceptions of price volatility. Price volatility will not only affect SAS but will also influence IRP estimates. An interesting extension of this study would be to use price volatility as a moderating variable and examine its impact on the type of IRP used and its influence on VALOF and SAS.

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