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The Price of Launching a New Product: Empirical Evidence on Factors Affecting the Relative Magnitude of Slotting Allowances

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ABSTRACT

Slotting allowances are a relatively recent trend, particular to the retail food industry. These allowances are lump-sum up-front transfer payments from manufacturer to retailer when the manufacturer launches a new product. The practice has attracted some scrutiny because of uncertainty about its purposes and consequences. We draw from the extant literature to identify factors that potentially influence the relative magnitude of slotting allowances. Based on analysis of primary survey data from retailers and manufacturers, we observe that the charging and paying of slotting allowances is seemingly affected by the relative strength of the players. Among retailers, the relative magnitude of slotting fees increases with retailers' informational advantage over the manufacturer about the likely success of the new product. Similarly, the relative magnitude of slotting fees paid is lower for manufacturers who have a strong market share position. We discuss the theoretical, managerial and public policy implications of our findings.

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INTRODUCTION

- *On November 8, 1995, the Federal Trade Commission held hearings to determine if antitrust and consumer protection regulations needed updating in light of the recent emergence of a phenomenon known as "slotting allowances", a lump-sum advance payment that manufacturers pay grocery retailers to stock new products. One expert economist testified that slotting allowances (estimated at between $6-$9 billion a year, which could represent up to a third of new product marketing budgets) can both promote and stifle competition. They promote competition by forcing firms to only launch products that are likely to be successful, and stifle competition by limiting the ability of small manufacturers to enter. A legal expert offered the opinion that slotting fees may be a thinly disguised form of price discrimination, because the fees demanded may vary by the size and brand equity of the manufacturer. This expert also suggested that the practice was spreading to various other consumer-goods industries.*

- *On November 10, 1995, ABC News aired a special report on its 20/20 program. Using a hidden camera, the show documented conversations between an entrepreneur and buyers for two food retailers, during which the buyers indicated that "slotting fees" were more important than sales presentations in gaining shelf space. One buyer indicated that the typical slotting fee was $5,000 per item, while the other buyer indicated that the price was closer to $8,000-$10,000.*

- *In September 1999, a United States Senate committee on Small Business held hearings on slotting fees. Witnesses included two small-business owners who were shrouded in black hoods because they feared retaliation from powerful retailers. In voices that were electronically altered, they spoke of the chilling effect of slotting allowances on their ability to compete.*

Manufacturers often pay slotting allowances to retailers when they launch new products. These fees are lump-sum up-front payments that retailers allegedly demand to stock the new product. While these fees have been reported to have surfaced as early as 1979, they appear to be reemerging with a vengeance. The magnitude of the fee charged can be quite high; consequently the topic generates strong reactions from those who pay them, from those who charge them, and from those who are contemplating regulation of the players. Based on recent testimony at a Federal Trade Commission sponsored workshop, as well as Congressional testimony, it appears that some manufacturers abhor them because they impose additional costs on them, some retailers and wholesalers claim that they are necessary in light of the "excessive" rate of new product

introductions by manufacturers, and regulators appear puzzled as to whether the fee is (a) "anti-competitive" because it may discriminate against small firms, (b) inflationary, since it may raise manufacturer's costs, or (c) efficient, since it may ration scarce shelf space and screen out potentially weak new products.

As the opening vignettes suggest, slotting allowances are a substantial, growing, yet controversial phenomenon whose purposes and consequences are not entirely clear. Specifically, while it is widely speculated that slotting allowances are, among other things, a consequence of retailer power (suggesting that these allowances are likely to become common in other industries populated by powerful retailers), or an efficient response to the proliferation of new products that compete for scarce retail shelf space (again, suggesting that such allowances will become popular in industries where new product introductions are frequent and shelf space is scarce), the limited available evidence is somewhat ambiguous about the purposes that slotting allowances serve. Sullivan (1997) employs secondary data and speaks only indirectly to some of the prevailing theories in the Marketing literature; Bloom, Gundlach and Cannon (2000) report the opinions of manufacturers and retailers, and find that the opinions of these players are often at odds with some existing theoretical perspectives and with each other; White, Troy and Gerlich (2000) examine the new product adoption decisions in a single chain and, among other things, find some preliminary evidence that is consistent with an anti-competitive story.

Given the apparent importance of the topic and the relative paucity of direct evidence on what drives the magnitude of slotting allowances, our goal is to derive theoretically driven testable propositions and empirically examine the issue. We draw from the existing literature to identify a series of factors that have been implicated in the slotting allowance decision. We then derive

predictions regarding variations in the relative amount of slotting fees charged based on characteristics of the exchange as suggested in extant models.

Next we provide a review of the literature and describe the various extant theoretical perspectives. We then describe our empirical effort that comprised a survey of retailers and manufacturers in the grocery industry (where the phenomenon has its roots). Based on our results, we conclude with a discussion of the implications of our research and directions for future research.

EXTANT PERSPECTIVES AND PREDICTIONS

Recently, empirical investigations of secondary data (Sullivan 1997), the opinions of practitioners (Bloom et. al. 2000), as well as the practices of a single grocery chain (White et. al. 2000) have begun to shed some light on the payment of slotting allowances. However, the conclusions from these papers are somewhat conflicting. While Sullivan's broadbrush macroeconomic analysis is supportive of a "pro-competitive" conclusion for the emergence of slotting fees, White et. al. offer some speculation that manufacturer size might attenuate slotting allowances (this is an "anti-competitive" story), and Bloom et. al. provide data from manufacturers and retailers that provides conflicting evidence on why the practice exists.

We report on a systematic, broad-based primary data collection exercise of retailers and manufacturers designed to speak to the various underlying theoretical rationales for variations in the charging and payment of slotting allowances. Our contribution can be assessed based on calls for future research from other prominent scholars. For instance, Sullivan (1997) observes "…testing … a signaling hypothesis is a challenging topic for future research" (p. 492). While her aggregate level data provides a nice macro-level overview of broad-brush patterns, our more micro-level examination reveals some additional empirical regularities that are intriguing and is consistent with the view that interesting patterns may lie embedded in aggregate data (Simon 1976, McCracken,

Boynton and Blake 1982). Further, Bloom et. al. (2000) note that their research is based on single-item measures of practitioner opinions, and they "… advocate additional studies of slotting fees to fully understand their nature and implications for the marketplace" (p. 106). Similarly, White et. al. (2000) acknowledge the limitations of their examination of a single chain and call for a "…deeper understanding of the numerous issues regarding slotting-fee size…it would be interesting to determine how the range of (slotting fees) varies *across* manufacturers and retailers. In particular, it is unknown whether our findings would be comparable for retail chains (or manufacturers) with different levels of market power" (p. 297-298, emphasis added). Our research addresses these calls by employing multiple-item indicators that have desirable psychometric properties, on a broad sample of respondents, and by testing a variety of theoretical perspectives, including the dominant signaling argument (Chu 1992; Lariviere and Padmanabhan 1997).

Bloom, Gundlach and Cannon (2000) provide an excellent summary review of the extant perspectives and literature on the topic of slotting allowances. They identify two schools of thought: (a) the efficiency school according to which slotting allowances are a useful mechanism that screen new products that are likely to fail out of the system, allocate scarce shelf space, and apportion new product risk correctly, and (b) the market power school according to which slotting allowances are "extorted" by powerful retailers (or paid by powerful manufacturers) to discriminate against small players, reduce innovation, and potentially harm consumer welfare.

In the empirical component of their paper, Bloom et. al. (2000) adopt a descriptive approach. Their stated objective was "…not to test formally the various 'possibility theorems' underlying each school of thought but to determine the extent to which industry participants believe each theorem accurately reflects slotting fee practices" (p. 97). In other words, they were not seeking to test theory, but were seeking a first approximation of whether the theories had any face validity in the

eyes of their respondents. To accomplish this task, they surveyed manufacturers, retailers (and wholesalers, but they do not report wholesaler responses) to ascertain their level of agreement with various statements regarding the purposes and consequences of slotting allowances. In light of their objective, this approach is eminently reasonable, yet their data do not provide much evidence on the factors that influence variations in the phenomenon itself. Rather, the data (comprising responses to single-item measures on whether respondents agree or disagree with a particular perspective on slotting allowances) predictably reflect the self-interest of the respondent. Retailers generally seem to agree that slotting allowances are necessary in light of the proliferation of new products, while manufacturers tend to support the perspective that retailers are taking advantage of their power, and are also acting in a discriminatory manner. Many of their conclusions can be explained by strategic behavior on the part of their respondents. As Bloom et. al. (2000) themselves note "…manager perceptions…may not accurately reflect reality and their opinions about slotting fees. Respondents may have had limited information and knowledge, or their perceptions may have been distorted by self-interest" (p. 106). In light of their own acknowledgement of methodological and other limitations, and the consequences of those limitations for theory testing and development as well as for public policy, it is appropriate to examine the issue in an empirically rigorous manner that employs a methodology and analytical procedures that are less subject to strategic behavior on the part of respondents and are amenable to standard empirical procedures that reveal the underlying psychometric properties of the measurement. Our study attempts to accomplish this task, which we will describe after a review of the pertinent literature.

Consistent with Bloom et. al., our review of the literature focuses on three broad categories of explanations that account for the emergence of slotting allowances. They are: (i) solving information asymmetry between manufacturers and retailers (the efficiency school), (ii) equating the demand for

and supply of new products (the efficiency school), and (iii) the exercise of retailer (and manufacturer) power (the market power school) (Sullivan 1992, 1997; Lariviere and Padmanabhan 1997; Shaeffer 1991).

Solving Information Asymmetry

Chu (1992) discusses how slotting allowances might solve information asymmetry problems between the manufacturer and the retailer; manufacturers may *signal* the likely success of a new product, by offering to pay such an up-front fee. Since this argument is somewhat complex, we describe it in detail here.

Information asymmetry occurs when one party to a transaction has pertinent information that the other party lacks. Two types of information problems, *adverse selection* or *hidden information* and *moral hazard* or *hidden action,* have been studied in the literature (Bergen, Dutta, and Walker 1992; Rao and Monroe 1996; Mishra, Heide and Cort 1998; Kirmani and Rao 2000). Adverse selection problems occur when one party is uncertain about the claims that the other party makes regarding its *capability* to fulfill contractual obligations[2]. For instance, a buyer may be unsure if a seller has the requisite skills to manufacture and deliver a high quality product, or, in our context, a retailer may be unsure about the likely success of a new product being offered by a manufacturer.

With the explosion in new product introductions, and a commensurate increase in the number of new product failures, the economic consequences of a decision on whether or not to carry a new product are non-trivial, and retailers are therefore forced to exercise considerable circumspection in the choice of which of several new products to stock (Sullivan 1997). Thus the retailer is faced with an adverse selection problem. Some new products will likely be successful, while others will not, and simply examining pre-launch projections, marketing research data, and the like, frequently does not provide an accurate indication of future demand. As Chu (1992) observes, manufacturers may

misrepresent their pretest or other market research information, emphasizing positive and favorable information, in part because they expect the product to succeed as a consequence of post-launch adjustments to the marketing mix (p. 329). Additionally, as Boulding, Morgan and Staelin (1997) demonstrate, managers may be irrationally committed to a new product launch. The retailer's problem, therefore, is to determine the *type* of the new product (high or low demand) so as to minimize his risk if the new product fails.

One solution to this information asymmetry problem is for the manufacturer to pay a fee that would not have been paid under full information (i.e., if there had been no uncertainty about demand for the new product). By doing so, the manufacturer can credibly communicate that she is a manufacturer selling a new product that will have *high* demand, since manufacturers of *low* demand products would not be able to recover this expenditure from future sales and therefore would not rationally incur such an expenditure (cf. Kirmani and Rao 2000). Thus, the slotting fee signal can solve the *adverse selection* problem and should be observed when retailers are uncertain about a new product's success, but manufacturers are certain that the product will succeed (Chu 1992) [3].

Our first refutable prediction emanates from this signaling argument (Chu 1992; Lariviere and Padmnabhan 1997; Desai 2000). High demand firms signal their belief by putting their economic interests at risk, something that low demand firms will do at their economic peril [4]:

> H1: When manufacturers are better informed than retailers about the likely success of their new product, the relative magnitude of slotting allowances should increase, to credibly communicate this private information.

Equating Demand and Supply

According to a second class of explanation, slotting allowances are a response to increases in the rate of new product introduction relative to consumer demand for those products. If consumer demand for new products was consistent with the supply of new products, there should be no fee

necessary to induce retailers to stock the new products, as the costs of new product introduction would be covered by margins associated with sales. However, if demand lagged supply, then to compensate for the retailer's costs associated with new product introduction and failure, manufacturers need to pay a slotting fee.

Sullivan develops a model based on this rationale. She considers the role of slotting allowances as a mechanism to "…equate the retail demand for new products with … supply" (Sullivan 1997, p. 463). According to Sullivan's model, the retailer's optimal quantity and number of products carried is a function of the retailer's operating costs, and these costs increase in the number and quantity of products stocked. In particular, for new product introductions retailers require compensation for costs such as the one-time fees associated with entering SKU information into the store's computer system, warehouse placements, shelving costs, as well as the opportunity cost of the shelf space (Freeman 1986; Hall 1988).

While Sullivan's data are supportive of a pro-competitive argument (that slotting allowances are explained principally by an escalation in new product activity), the level of aggregation in her data makes it difficult to tease out *variations* in the charging of slotting allowances. Specifically, it is unclear if slotting allowances vary by the size and past successes of manufacturers, their level of information relative to the retailer, the size and costs of the retailer, and other micro level variations that typify inter-organizational governance mechanisms. Therefore, while she is able to dismiss several rival explanations at the macro level, it is feasible that a more micro-level analysis will reveal additional insights. For instance, one logical implication of her line of reasoning is that slotting allowances should be higher when the retailer's costs are high. In particular, costs such as placing new products on shelves, the time required to shelve new products, and the opportunity cost of shelf space could vary by retailer, and these costs should be systematically related to the relative

magnitude of slotting allowances charged. Since we examine micro level data, we will be able to speak to the direct relationship between costs and slotting allowances.

Our second refutable prediction emanates from this demand-supply argument (Sullivan 1997). According to this perspective, retailers who have high costs should seek slotting allowances to a greater degree, to compensate for their costs. Specifically,

> H2: When retailer's costs are high the relative magnitude of slotting allowances charged should be high, to compensate for their costs.

The exercise of retailer power

The third class of explanation suggests that slotting allowances are a facilitating device. Shaffer (1991) develops this anti-competitive argument according to which, when no slotting allowances are paid, the manufacturer's wholesale price is set to be equal to marginal cost. However, under a slotting allowance regime, wholesale prices are raised (to be in excess of marginal cost) and the difference is paid to the retailer as a fixed, slotting fee. Shaffer's model suggests that the presence of slotting allowances in combination with a relatively high wholesale price results in lower downstream price competition among retailers, and thus increases their profits. Specifically "(I)n providing a means for retailers to commit contractually to high prices, a manufacturer indirectly raises retailer profits by eliminating their incentive for aggressive downstream pricing. Although manufacturers would prefer lower retail prices and hence greater sales, the competition among themselves for the scarce shelf-space provides the incentive for such contracts" (Shaffer (1991, p. 121).

This practice has no effect on manufacturer profits in his model because the margin (which accrues from the higher wholesale price) is paid back to retailers as a fixed slotting fee, and manufacturers are therefore indifferent between paying and not paying slotting fees. However, when faced with powerful retailers who prefer the payment of slotting fees and the accompanying high

wholesale prices that then limit downstream price competition, manufacturers are willing to pay slotting fees[5]. Essentially therefore, according to this argument, slotting allowances should be accompanied by higher wholesale prices (which in turn should lead to higher retail prices, and lower price competition among retailers).

Our third refutable prediction emanates from this retailer power argument. If slotting allowances are a manifestation of retailer power, a high wholesale price accompanied by slotting allowances should result in lower retail price competition. Therefore:

H3: When the relative magnitude of slotting allowances is high, wholesale prices should also be high.

In summary, the literature offers several explanations and predictions for the role that slotting allowances play in manufacturer-retailer transactions when new products are launched[6]. The relative magnitude of slotting allowances paid may signal unobservable demand and shift the risk associated with new product introduction to the more informed party (the manufacturer) (H1). The relative magnitude of slotting allowance charged may compensate retailers for the costs associated with their role in new product introductions (H2), and/or be a manifestation of retailer power, in which case it should be accompanied by higher wholesale prices (H3). Notice that an alternative interpretation of H3 is consistent with the signaling argument. Here, slotting fees may be offered as a signal but the cost of the fee is recovered through higher wholesale prices.

The role of New Product Failure

Underlying much of the theorizing about slotting allowances lies the concern that the new product may fail. Hence, under H1, the slotting fee is argued to serve as a signal of potential new product success, presumably when there is concern that the product will not succeed. Similarly, under H2, among other things, the slotting fee compensates retailers for the costs associated with stocking products that are not in demand (and are therefore likely to fail). H3, however, does not

invoke the notion of new product success or failure; slotting allowances merely represent a transfer of margin from a wholesale price to a fixed fee. Here, regardless of the potential success or failure of the new product, the slotting allowance works as a facilitating device that reduces downstream price competition. (Obviously, if the new product's success is contingent on low retail prices, then slotting allowances should drop, but this speculation is beyond the scope of the Shaffer model and this paper.)

In light of this implicit role of the likely success of the new product, we incorporate the role of new product success in our conceptualization. Specifically, when information asymmetry exists (i.e., when the manufacturer is better informed than the retailer about the likely success of the new product) and the retailer is concerned about new product failure, H1 and H2 should be observed. However, if the retailer is convinced about the likely success of the new product, neither the signaling nor the cost-compensating role of slotting allowances ought to be operative. On the contrary, retailers should compete for the product, as a consequence of which the magnitude of slotting fee should fall (and the phenomenon might even disappear) and wholesale prices should potentially rise. (A third possibility, that the manufacturer is afraid that the new product will fail, should not occur; if she is afraid of such an outcome then the product will likely will not be launched).

In light of this framework, we expect the effects of H1 and H2 should be stronger when the retailer expects the new product to fail, and the manufacturer expects the new product to succeed. (For strategic reasons, even when the retailer expects the new product to succeed, he may represent that the success of the new product is in doubt, so the empirical effect may be observed regardless of the retailer's true opinion.) In other words, we expect an interaction effect of manufacturer

information and product failure (H1), as well as retailer's cost and product failure (H2), on the relative magnitude of slotting allowances charged.

To test these predictions, we conducted two surveys. In the first, we sampled buyers in the retail food industry, while in the second we sampled executives in food manufacturing firms who were charged with trade promotion decisions. We turn to a description of these two studies next.

METHODOLOGY: STUDY I

The first study focussed on the retailer end of the dyad and constituted three phases.

Phase I

Several one-on-one and group meetings with fifteen buyers and managers of a large grocery store chain in the upper mid-west revealed that, while respondents may be concerned about responding to questions on a topic that was potentially illegal, they would be able and willing to respond as long as (a) we were able to assure their anonymity, (b) the questionnaire was relatively short, and (c) the questions did not ask for confidential financial data. This last concern had obvious implications for our ability to collect information on the magnitude of fees charged, prices, margins and the like. Further, after we described the constructs of interest, their conceptual underpinnings and their hypothesized inter-relationships, respondents suggested several scale items and offered input on items that we had already developed. This procedure allowed us to develop a questionnaire for pre-testing on a larger and more diverse sample in Phase II.

Phase II

Multi-item scales were developed for the following constructs: receipt of slotting allowances (SAAMT), informational advantage of manufacturer (MANINFOR) , retailer's costs (COST), probability of failure of the new product (PFAIL), and a single-item measure for wholesale price (WP). The questionnaire comprised two major sections. Respondents who indicated that they had

received a slotting allowance from their last vendor provided responses to several 5-point Likert scale items about that particular vendor and that particular interaction. Respondents who had not received a slotting allowance from their last vendor provided opinions on several other items including the role of slotting allowances, technology, new product introductions and the like, in their industry. Finally, all respondents provided demographic information and responded to an open-ended debriefing question.

The Directory of Supermarket, Grocery and Convenience Store Chains (1997) was used to establish initial telephone contact and solicit participation from respondents across the United States. A quota sampling technique ensured that respondents from every state were contacted in proportion to the number of grocery retailers in that state. Those agreeing to participate were then sent a mail questionnaire with a cover letter on University letterhead, a reply paid envelope, and a postcard inviting them to request a "PAR REPORT" that would describe how their response compared with others in the sample. Reminder postcards were sent out two weeks later.

Of the 600 people contacted, 260 agreed to participate and 58 questionnaires were returned from this set, yielding a response rate of 22.31%. Psychometric analyses of scale items followed. Further, the qualitative responses were examined for any potential insights[7]. Based on these analyses, several changes were made to the instrument, which increased the length of the survey but were deemed essential for measurement rigor.

Phase III

The procedures employed in this phase were identical to those employed in Phase II. Twelve hundred potential respondents were contacted using a quota sampling procedure, and 748 agreed to participate. A total of 116 responses were received from this set prior to a pre-specified cut-off date, yielding a response rate of 15.51%.

The modifications to the questionnaire were as follows. First, in an attempt to boost the number of responses available for analysis, any respondent who had *ever* received a slotting fee was asked to provide responses to the variables of interest. These items pertained to the transaction in which the slotting fee was paid and included questions about the vendor, the product, the retailer, the competitive environment, the nature and degree of information asymmetry, cost of stocking shelves, opportunity cost of space, slotting allowances received, and several control variables, many of which had been revised or included based on the analysis of Phase II results. (The key constructs and their reliabilities are provided in Appendix A).

The conceptual rationale for our measures was based on respondent input as well as the theoretical content of the constructs. Thus, slotting allowances were measured by asking respondents to judge the amount of fee received in one particular interaction relative to other products, other vendors, and the fee other retailers may have received. Similarly, the degree to which one party (manufacturer or retailer) was more informed than the other about the new product's likely success was measured based on perceptions about local market expertise as well as product-specific relative marketing research competence. The cost measures included time and money costs of labor as well as opportunity cost of shelf space. Finally, while we attempted to measure whether the new product was likely to fail using a 3-item scale, as we will discuss shortly, this attempt was not successful, so we report the single item scale that we used in subsequent analyses, in Appendix A.

Respondents who had never received a slotting fee before were directed to a section of the questionnaire that asked for their opinions on several issues pertinent to the retail food industry. Finally, demographic information regarding the respondent, as well as descriptive information regarding the retailer was collected from all respondents. After a pre-specified cut-off date, those requesting "PAR REPORTS" were provided mean and standard deviation data on all scale items

with a cover letter in which these data were interpreted in lay terms, and the key results were described.

ANALYSIS AND RESULTS: STUDY I

Descriptive Information

Of the 116 respondents, 82 (71% of our sample) indicated that they had indeed received slotting allowances[8]. A comparison of the demographic characteristics of those who had received slotting allowances and those who had not indicates that, other than the number of years employed with current employer (recipients of slotting fees had significantly less tenure (16 vs. 18.39 years $p < .05$)), the two groups did not differ significantly on any other demographic factors. An analysis of the categorical data on age, management level and type of organization suggests that respondents in the two groups were not significantly different from each other (because some cells had less than 5 data points, all χ^2 tests are approximate, but none approached significance at $p < .20$). Purchasing volume dollar figures indicated that those who did not receive slotting allowances were involved with purchases that averaged $7.1 million the previous year, while the group that received slotting allowances was involved with purchases that averaged $112 million, a figure that is roughly 16 times higher than the first group's purchases. According to the qualitative responses they provided, the recipients of slotting allowances received these fees from a large variety of firms ranging from Fortune 100 consumer products companies, to relatively obscure regional manufacturers. Overall, the data suggests that the group that did not receive slotting allowances consisted of small, owner operated chains and stores, and, consistent with the retailer power argument, their small size reduced their ability to extract slotting allowances from manufacturers.

To assess concerns regarding non-response bias, we performed two analyses (Armstrong and Overton 1977). First, we compared early and late respondents on the demographic criteria discussed

above, and found no statistically significant differences between the two groups on any demographic dimensions. Second, we compared the data on dollar value of purchases in our overall sample with that of the population from which we drew. That analysis suggests that our respondents were at the high end of the spectrum. In the population, the average store in a chain that comprises more than two hundred one stores (the category with the highest per-store sales volume) had an annual sales volume of $10.5 million. Our respondents were, on average, involved with purchases of over $78.6 million. Since we do not have information on the distribution of sales volumes of stores in the population, and since our measure is a measure of the respondent's involvement in purchases (which may include purchases for multiple stores) we do not interpret this difference further. However, we do caution that our results may not generalize to the population of retail stores nationwide.

Measures

We began by performing standard scale purification procedures for our measures (Churchill 1979). The process of scale purification involved an examination of inter-item correlations, an assessment of inter-item reliability, and an attempt to establish discriminant validity through exploratory and confirmatory factor analysis. While our attempt at generating multi-item measures for our principal theoretical constructs was generally successful (3-item scales each for slotting allowances (SAAMT), manufacturer's informational advantage (MANINFOR), and retailer's cost (COST)), we were unable to generate a satisfactory multi-item measure of probability of failure (PFAIL). We therefore used a single-item measure for PFAIL[9]. A median split on this measure allowed us to examine whether the effects predicted for H1 and H2 varied depending on the likely success of the new product, as we will discuss later.

We present the final set of measures (including single-item measures where appropriate) in Appendix A. A correlation matrix and the output of a confirmatory factor analysis for these

measures are provided in Tables 1, 2 and 3 respectively. The correlation matrix indicates that, except for one item, all items correlated better with items designed to measure the same construct. The one exception was the second indicator of COST (COST2). However, the confirmatory factor analysis reveals that this item loads highly on the COST factor. All other scale items load as desired. Further, the reliability values of all our multi-item scales (see Appendix A) satisfy the .60 cut-off level prescribed for exploratory research (Nunnally 1967).

Insert Tables 1, 2 and 3 about here

In the interest of brevity, we do not report the (supportive) evidence from our exploratory factor analysis, but focus on the confirmatory factor analysis to establish discriminant validity (see Bvik and John 2000 for an identical approach). The significance of the overall $\chi^2_{(69)} = 65.27$ ($p < .01$) suggests that this model does not reproduce the sample correlation within sampling error. However, since χ^2 is not reliable for assessing fit in large sample sizes (Bollen 1989), and since we are interested in discriminant validity rather than model fit, *per se*, we examined the factor loadings (Table 2) which indicate that the measures successfully discriminate among the constructs. Further, the ψ matrix (which provides the standard errors associated with η, see Table 3) reveals that the confidence limits surrounding the off-diagonal covariance terms do not approach 1.00 for any of the constructs, providing additional support for discriminant validity. Finally, the $\chi^2_{(69)}$ associated with nested models where the covariance between pairs of factors was set to 1.00 was generally much higher (129.06 and higher), a difference that is significant ($\Delta\chi^2_{(1)}$ significant at $p < .05$). In sum, consistent with other research that adopts a similar approach and offers similar conclusions (e.g., Mishra et. al. 1998), we conclude that the evidence in favor of discriminant validity is persuasive.

The process of scale purification yielded 3-item measures of (a) slotting allowance charged (SAAMT), informational advantage of the manufacturer relative to the retailer (MANINFOR), and (c) the retailer's costs (COST). Recall that, to measure wholesale price (WP) we employed a single-item scale. Finally, as noted above, we employed a single-item measure for PFAIL.

Tests of Hypotheses

To assess support for the hypotheses, we estimated the following regression equation:

$$SAAMT = \beta_0 + \beta_1(MANINFOR) + \beta_2(COST) + \beta_3(WP) + \beta_4(PFAIL) + \beta_5(MANINFOR*DUMMY) + \beta_5(COST*DUMMY) \quad (1)$$

Variables used in the models were the composite measures generated by computing the average value of the purified scale items, as well as single-item measures where appropriate. Three key factors hypothesized to explain variations in slotting allowances were: a) the manufacturer's private information about the likely success of the product (MANINFOR), based on H1, b) the retailer's costs (COST), based on H2, and c) the wholesale price (WP), based on H3. Further, the interactive role of the prospect of new product failure (PFAIL) was incorporated into the model by defining two interaction terms. The interaction term (MANINFOR*DUMMY) comprised a combination of the manufacturer's private information and a dummy variable for when PFAIL was high (=0) and when PFAIL was low (=1). Similarly, the second interaction term (COST*DUMMY) comprised a combination of the retailer's costs and a dummy variable for when PFAIL was high (=0) and when PFAIL was low (=1). Finally, to avoid a mis-specification error (induced by not accounting for differences in the intercepts for the two values of PFAIL), PFAIL was included in the model as an independent variable (Irwin and McClelland 2001).

The model in eq. 1, not surprisingly, had some serious multi-collinearity associated with the interaction terms. Two variance inflation factors were greater than 10. In light of this, we reran the

model without the interaction terms (neither interaction term had approached significance in the earlier estimation, $p > .20$). This model is significant ($F_{(4,63)} = 2.87$, $p<.03$) and the fit statistics are reasonable ($R^2 = .15$, $R^2_{adj} = .10$). Model prediction (PRESS = 22.47) is good, and the multi-collinearity diagnostics show no cause for concern ($VIF_{max} = 1.25$, Tolerance = .96, largest eigen value $\lambda_{max} = 4.71$, $\lambda_{min} = .02$, and ϕ, the ratio between the largest and smallest eigen values, is 292.54, Myers 1990). Finally, a test for heteroscedasticity reveals no cause for concern ($\chi^2_{(14)} = 13.68$, $p > .47$, for White's test). Therefore, we report the OLS parameter estimates below (italicized terms significant at $p < .05$):

$$\textit{SAAMT} = \textit{1.72} \text{ -.02PFAIL } \textit{ - .60MANINFOR} \text{ - .03WP } \textit{-.24COST} \quad (2)$$

The results of this first analysis are striking. The two significant findings are in the direction *opposite* to that predicted. As the manufacturer's relative marketing research expertise is perceived to increase (a prerequisite to having private information about the likely success of the product), the degree to which slotting allowances are charged drops. This suggests that there is no support for the signaling argument that higher slotting allowances will be observed when manufacturers have *more* information than retailers do about the potential success of the new product. To the contrary, when vendors with marketing research expertise launch new products, they are likely presumed to be knowledgeable about the potential success of the new product, seemingly because vendors with marketing research expertise are unlikely to launch products that may fail. Next, and again contrary to extant theory, COST is *negatively* related to slotting allowances. This finding suggests that when retailer costs are low, slotting allowances charged *increase*. One possibility is that more efficient retailers tend to have lower costs, and are also more savvy. It is these savvier retailers who are able to extract higher slotting allowances. Finally, in this data set, neither the potential success of the product, nor its wholesale price have any discernible impact on the slotting allowances charged[10].

While this data set offers persuasive evidence that powerful retailers are able to extract slotting allowances from relatively uninformed manufacturers, the absence of support for the variety of prevailing extant theories gives pause for thought. While retailers may behave in a manner consistent with such a power explanation, manufacturers may be attempting to transmit signals that are not being received accurately because of noise in the environment (Kirmani and Rao 2000). To assess this possibility, we conducted a similar survey of manufacturers in the retail food industry to determine whether any of the extant theoretical perspectives were operative on the other side of the dyad.

METHODOLOGY: STUDY II

Our approach in this second study was similar to that employed in the previous study. We discussed the topic with executives of food companies to gain qualitative insight into their perspective. (In addition to the usual caveats, we were frequently told that legal concerns would likely limit responses.) We then acquired a list of potential respondents from Cahners Direct Marketing (cf. Bloom et. al. 2000), contacted a quota sample by telephone to solicit participation, mailed questionnaires and reminder postcards, and received a total of 148 responses by a pre-specified cut-off date (yielding a response rate of 12.04%). Our low response rate is probably a function of the length of the questionnaire (8 pages), the sensitivity of the topic, and the fact that several of our initial contacts who agreed to participate turned out to be channel intermediaries who did not deal with retailers.

The questionnaire format was similar to that employed in the retailer study. Respondents who indicated that they had paid special fees as part of a new product launch were directed to a section of the questionnaire that comprised multiple measures of independent variables and potential covariates (n=108). A subset of these (n=72) reported having paid up-front slotting fees. Respondents who

reported never having paid a special fee when launching a new product (n=40) were directed to another section of the questionnaire in which their opinions about a series of retail practices was solicited.

An examination of early versus late respondents showed no significant differences on any demographic characteristics. Further, a comparison between those who paid slotting allowances and those who did not indicated that slotting allowance payers tended to be involved with sales that were roughly twice as large as those who did not pay slotting allowances ($96160000.4 vs. $43701555.56); there were no other differences between the two groups.

Measures

We used several measures that were mirror images of the measures that were used in the first study. We also developed additional new measures in an effort to correct for shortcomings in the first study. Finally, we added new items to measure the degree to which the manufacturer held a dominant market share *(MLEAD)*. This construct had been drawn to our attention in qualitative responses in Study I, discussions with food manufacturers, and presentations of the results of Study I at two conferences. It was repeatedly noted that there was a profound difference between the treatment meted out to market share leaders in a category relative to other players. In addition, it was noted that firms who were not market share leaders tended to use monetary inducements (sometimes indiscriminately) in an effort to gain shelf space so as to achieve market share leadership, because of either a real or imagined benefit to market share leadership. In light of the apparent importance of this construct, we included a three-item scale to measure it in our study of manufacturers. Further, based on the argument that weak market share firms will need to pay higher slotting fees to successfully access shelf space (and contrary to the anti-competitive argument,

according to which market share leaders should seek to preserve their position by paying slotting allowances that then serve as a barrier to entry) we hypothesize:

H4: The relative magnitude of slotting allowances paid should decline with market share leadership of manufacturers.

We followed scale purification and validation procedures that were identical to those employed in Study I (see Appendix B for measures of our principal constructs). Based on exploratory and confirmatory factor analysis and reliability analysis, we were able to generate multi-item scales for SAAMT, MLEAD, COST, and MANINFOR. However, much like in Study I, we were unable to generate a multi-item scale for PFAIL. Finally, as in Study I we used a single-item measure for WP. The correlation matrix for our principal constructs and results of our confirmatory factor analysis procedure are available in Tables 4, 5 and 6. As in Study I, while the overall χ^2 value (which is not reliable for large sample sizes) suggests that our model could be improved from a fit standpoint, the evidence for discriminant validity is persuasive. One of the nested models did not converge; however, an examination of the content of the items as well as an examination of the ψ matrix in Table 6 (note that the confidence limits surrounding the off-diagonal covariance terms do not approach 1.00 for any of the constructs) provides acceptable support for our claim of discriminant validity. Further, the reliability values are satisfactory (Nunnally 1967).

Insert Tables 4, 5 and 6 about here

Analysis

As in Study I, we estimated a regression equation that included effects for MANINFOR, COST, WP, PFAIL and MLEAD, as well as the interactions between MANINFOR and a dummy variable

for PFAIL and COST and a dummy variable for PFAIL. As in the case of Study I, the initial model with interaction terms suffered from severe multi-collinearity. Consequently, we estimated a model as follows, with significant parameters ($p < .035$ or better) italicized:

$$SAAMT = \mathit{4.01} + .07\ \text{MANINFOR} - .04\ \text{COST} - \mathit{.15\ WP} + .14\ \text{PFAIL} - \mathit{.23\ MLEAD} \quad (3)$$

The model is significant ($F_{(5,62)} = 2.72$, $p < .03$), the fit statistics are acceptable ($R^2 = .18$, $R^2_{adj} = .11$) as is the model's predictive ability (PRESS = 38.67) with no concern for multi-collinearity ($VIF_{max} = 1.16$, Tolerance = .96, largest eigen value $\lambda_{max} = 1.45$, $\lambda_{min} = .64$, and ϕ, the ratio between the largest and smallest eigen values, is 2.27, Myers 1990) or heteroskedasticity ($\chi^2_{(20)} = 14.89$, $p > .78$, for White's test). In addition, the non- significant MANINFOR and COST parameters have p values in excess of .5 associated with them[11].

Two interesting insights that emerge from this data are consistent with a manufacturer power story. Strong manufacturers (market share leaders) are able to successfully negotiate slotting allowances down, relative to their weaker counterparts. Further, some manufacturers are able to charge a *higher* wholesale price while simultaneously paying a lower slotting allowance. Seemingly, the argument that powerful manufacturers devised slotting allowances as a means of erecting a barrier to entry is no longer true. However, apparently there is merit to a "price discrimination" story based on this data.

DISCUSSION

Summary

The trade press is rife with anecdotal evidence on the prevalence and variation in slotting allowances (Boehning 1996; Neff 2000; Teinowitz 2000). The pragmatic significance of the phenomenon is borne out by the sheer magnitude of the monetary expenditure associated with slotting allowances; estimates range from 4.2% to 30-55% of trade promotion expenditures (see

Sullivan 1997, footnote 2). The theoretical significance of the issue is apparent from an examination of the variety of explanations for why slotting allowances have emerged, and what causes them to vary from one setting to the next (cf. Shaffer 1991; Chu 1992; Lariviere and Padmanabhan 1997; Sullivan 1997; Desai 2000).

Our results suggest that the operative explanation is a power explanation. According to our first study powerful retailers extract slotting allowances from *relatively uninformed* manufacturers when the expectation of new product success is high; manufacturers with credible information about the likely success of their new product pay lower slotting allowances. Additionally, retailers with lower costs (presumably more efficient retailers) extract *relatively higher* slotting allowances. Results from our second study are consistent with the power explanation. Market share leaders pay relatively low slotting allowances, and are also able to charge higher wholesale prices.

We summarize the results from our two empirical efforts in the Figure. Other than the substantive findings, an interesting feature of our results is that the evidence from both our data sets is remarkably consistent. In fact, on no conclusion is there any disagreement between the two respondent pools. This is noteworthy because this consistency is lacking in earlier work (see for example, Figure 1 in Bloom et. al. 2000). We attribute this consistency in our findings to our methodological procedures that (a) solicited the opinions of informed respondents, and (b) successfully masked the true purpose of our investigation from the respondents, thus limiting the possibility of strategic behavior on the part of the respondents.

Insert the Figure about here

Substantively, our findings are at odds with the signaling argument according to which *well informed manufacturers* will attempt to credibly reveal their private information about high unobservable demand by posting a slotting allowance as a bond (Kirmani and Rao 2000). Additionally, contrary to the "pro-competitive" demand/supply apportionment logic, retailers' costs are *negatively* related to the tendency to charge slotting allowances. Finally, the "anti-competitive" claim that slotting allowances are a mechanism to *raise* wholesale prices so as to reduce retail price competition also is not supported. However, there seems to be some evidence in support of the "discrimination" charge – the fees being charged (and paid) are not uniform across transactions between different parties.

Implications

Theoretical Implications

Based on this data, it is tempting to dismiss the signaling argument in favor of the power argument, for the emergence and continued existence of slotting allowances. However, such a conclusion may be premature. In fact, it may be possible to interpret some of our findings from an information asymmetry perspective. For instance, one information asymmetry based interpretation of our results is that when the retailer has more information (due to superior market data) about the likely success or failure of the new product than the manufacturer, the information asymmetry favors the retailer. This informational advantage may accrue because some sophisticated retailers routinely conduct research on their store and chain patrons. They examine existing databases comprising frequent shopper card based information to assess price sensitivity, coupon proneness, and responses to new product concepts (Fisher, Raman and McCelland 2000). Consistent with other information asymmetry models, the party with the informational advantage is able to capitalize on resulting price distortions, and thus receive a slotting fee. However, notice that this argument is fundamentally

different from the original signaling story, according to which well informed manufacturers communicate their unobservable demand to relatively uninformed retailers.

Second, signaling theory offers a normative prescription for how firms *ought to* behave. Our data simply suggest that firms do not behave in a manner consistent with the signaling story; we are however silent on whether firms would do better if they did behave in a manner consistent with the prescriptions of signaling.

Managerial Implications

There are several implications for practitioners. *First*, retailers do charge and manufacturers do pay slotting allowances (71% and 73% respectively of our samples) as the default option when asked to stock a new product. Manufacturers can, however, reduce the tendency to charge the fee by coming armed with convincing market research data that demonstrates their superiority over the retailer on this dimension. Further, market share leaders tend to be excused from the fee, suggesting that there are legitimate economic benefits to market share leadership.

Second, manufacturers can elect to refuse to pay a slotting allowance if they are willing to suffer the consequences of more limited distribution. Smaller stores and chains as well as smaller manufacturers, that comprised nearly 30% of our samples, do not pay or receive slotting allowances.

Third, the relationship between slotting allowances and wholesale prices would merit some further scrutiny. While our results are consistent with Sullivan (1997) who also found no support for this "facilitating practice", and while Shaffer's (1991) model requires that the contractual terms between manufacturer and retailer be observable to other retailers for this practice to occur (something that rarely occurs in practice), a presentation at a recent FTC workshop on the practice explicitly recognized that slotting fees may raise wholesale prices in the short run (Salop 2000).

However, our data suggests that relative wholesale prices *drop* as slotting allowances increase. Perhaps objective data on wholesale prices would yield more insight into this question.

Public Policy

Several important issues that are currently engaging public policy officials as evidenced by topics discussed at the above-cited FTC workshop include (a) whether slotting allowances are exclusionary in their intent and effect (i.e., the antitrust issue), (b) whether they are discriminatory and therefore anti-competitive, and (c) what their effect is on prices to end consumers, product quality and variety available to end consumers, and innovation among manufacturers. The question of whether such fees are exclusionary revolves around whether the retailer demands them or the manufacturer offers them. If the manufacturer offers them, the effect of slotting allowances will be to raise the costs of competing for other manufacturers, thus reducing competition among manufacturers and damaging consumer welfare. Our data suggests that slotting allowances do not serve as a barrier to entry in this sense; market leaders do not pay slotting fees so as to raise the costs of doing business, with a view to excluding small firms that can not afford the fee. Further, since retailers should prefer to deal with multiple manufacturers rather than a single manufacturer, and since the charging of a slotting allowance may result in reduced competition among manufacturers, it is unlikely that retailers will charge slotting allowances to such a degree as to eliminate all but one vendor. So, unless retailers engage in free riding (hoping that other retailers will ensure the availability of an abundance of manufacturers), it is not in the retailer's long-term self-interest to charge slotting allowances and reduce competition in the vendor marketplace.

Our data also speaks to the second question and suggests that there is considerable variation in slotting fees charged, and that this variation favors better informed manufacturers who are market share leaders. It does appear that there is some merit to the concern that these fees are

"discriminatory", and fall disproportionately on firms that do not have a dominant position in the market.

Limitations and Future Research

Limitations

Much like other survey research that focuses on perceptual measures, our research is subject to several limitations. Conceptually, rigorous tests of signaling predictions are difficult even in experimental settings (cf. Boulding and Kirmani 1993; Rao, Qu and Ruekert 1999). The need to specify the precise circumstances under which separating equilibria will be observed make survey based tests of signaling predictions particularly difficult. Therefore, as we noted above, the observation that variations in slotting allowances are not easily explained by information asymmetry does not necessarily mean that slotting allowances can not be used to signal. Our observation that slotting allowances are apparently not used to signal is a descriptive finding; the normative claim that slotting allowances can be used to signal may nevertheless be true.

Our response rate is relatively low. However, given the sensitive nature of the data that we were collecting, this was to be expected. The low response rate restricts the generalizability of our findings, but as Morgan and Hunt (1994) suggest in their survey of tire retailers, generalizability is less pertinent to exploratory surveys.

Third, we encountered some measurement problems. Specifically, our attempt to discriminate between manufacturer's information advantage and slotting allowance charge was not successful in our manufacturer data set. Yet, based on the content of the items and the theoretical distinctions between the constructs, we did estimate regression models that implicated those measures. While a nicer discrimination between constructs would clearly have been desirable, the results that emerge

are nevertheless interesting and, consistent with Hattie (2000), we argue that the absence of high fit indices is not evidence of bad data but of underdeveloped theory.

Future Research

In addition to the adverse selection problem associated with the likely success of the new product, the retailer is faced with another complexity. "Retailers must decide whether a new product has enough *support* behind it to create consumer demand" (Mendelson 1996, emphasis added). Seemingly, the success or failure of the new product is often contingent upon post-launch actions that the manufacturer needs to undertake, such as advertising, coupon drops, and other forms of in-store support.

In the literature, solutions to such "moral hazard" or post-contractual *hidden action* problems emphasize incentives (Klein and Leffler 1981). For instance, it has been demonstrated that price premiums (a price over marginal cost) coupled with repeat purchase provides sellers an incentive to not debase quality (Klein and Leffler 1981). In addition, theoretical arguments (Rao and Monroe 1996) as well as empirical tests (Rao and Bergen 1992; Montgomery and Wernerfelt 1992) suggest that seller reputation can attenuate the need for such premiums. In other words, reputable sellers are less likely to engage in moral hazard and are thus less likely to receive a premium to assure honesty. In a channels context, manufacturers can offer retailers exclusive territories, which increases retailer profits and thus motivates them to provide desired services (Klein and Murphy 1988). In our setting, it is the *retailer* that may need to provide manufacturers an incentive (analogous to a price premium) to assure that the manufacturer expends adequate post-launch effort (Pelton, Strutton and Lumpkin 1997). One option available to the retailer is the offer of exclusive dealing, an option that is not observed in the grocery industry[12]. Another option is the offer of a relatively high wholesale price. By providing manufacturers "super-normal" margins (over a repeated number of purchases) retailers

can motivate manufacturers to support the new product. Further, consistent with the role that reputation is likely to play, such incentives ought only to be offered to firms who are likely to engage in "hidden action" (e.g., reputation-less firms who are less likely to be market share leaders).

Notice that the moral hazard problem is resolved through a subtly different mechanism than the adverse selection problem. By emphasizing incentives in a repeated game, one party is able to motivate the other to remain honest. In contrast, signals such as slotting allowances provide information about one party's unalterable (i.e., exogenously endowed) type[13]. Simply providing a higher than normal wholesale price is sufficient to resolve the moral hazard problem as long as the super-normal margins are provided repeatedly. In principle, therefore, slotting allowances should not play a role in resolving moral hazard problems.

This role of wholesale prices (and whether the incentives offered through prices depend on the slotting allowance extracted) in a new product launch is a topic worthy of future empirical scrutiny. For instance, in a different context, both Rao and Bergen (1992) and Montgomery and Wernerfelt (1992) independently concluded that reputable (or umbrella branded) manufacturers tended to receive lower price premiums because buyers expected them to be more trustworthy than reputation-less (or non-umbrella branded) suppliers. Therefore, to the extent that post-launch commitments are unenforceable, retailers may need to use high wholesale prices as an incentive to ensure that manufacturers with low reputations fulfill their post-launch obligations. In our surveys of retailers and manufacturers, we did attempt to gather some preliminary evidence on this issue. While our measure of moral hazard was weak (it comprised a 2-item scale that was significantly correlated, $p < .05$, but it did not exhibit sufficiently strong psychometric properties on other criteria), we did find that relative wholesale prices rose as moral hazard concerns increased, *particularly for low market share firms.*

Additionally, examining the choice of offering slotting allowances in cash versus "free cases", as opposed to other assurances of success such as "failure fees", all of which have different profit implications for manufacturers and retailers, would benefit from analytical and empirical scrutiny. Slotting allowances in cash benefit retailers without requiring any sales effort on their part, unlike free cases, which are valuable only if sales occur. Further, failure fees are akin to warranties – unlike slotting allowances, they are never paid if the product is successful, and therefore ought to be attractive to manufacturers who know they have a successful new product on their hands, *unless they wish to use slotting allowances to exclude competitors.* Finally, with the advent of Web-based shopping and retailers' ability to stock products in a "virtual" manner, the reshelving cost based justification for slotting allowances may reduce, and be replaced by other costs of new product introduction, a topic worthy of further scrutiny.

Finally, our finding regarding the market share position of the manufacturer and slotting fees paid merits further scrutiny. Whether this situation prevails because small share firms willingly pay these fees to acquire shelf space, or big share firms are excused from paying these fees because of their reputation for successful new product launches, is an issue left to future research.

Conclusion

New product launches are hazardous. Some estimates place failure rates in the grocery industry to be as high as 80% (Wolfsenberger 1991). This failure rate coupled with the observation that the number of new product introductions increased about five-fold between 1978 and 1987, while the amount of available space barely doubled (Sullivan, 1997), has forced retailers to exercise great circumspection in selecting which new products to stock, since they are unable to tell *a priori* which new product is likely to succeed. This circumspection is a source of considerable tension between retailers and manufacturers in the food industry, and therefore represents a nice setting in which to

study the mechanisms that emerge to resolve uncertainty about future demand for new products. Our research sheds some light on the factors that influence the charging and payment of slotting allowances and raises additional questions about the public policy implications of the practice.

ENDNOTES

1. In addition, Bloom et. al. (2000) used single-item response scales to measure the vast majority of their constructs. As a consequence, analyses (such as reliability analysis, discriminant analysis and the like) to assess the psychometric properties of their measures were not possible (see p. 100 in Bloom et. al. (2000)).

2. Moral hazard problems occur when one party is uncertain about the *intentions* of the other party. For instance, a buyer may be afraid that a seller will reduce quality after the contract has been signed, or, in our context, a retailer may be afraid that a manufacturer will not fulfill commitments to support a new product, after it has been launched. Since this issue has not been discussed in this literature and is not pertinent to our inquiry, we do not expand on it further here.

3. The choice of a slotting allowance over other types of signals (such as advertising, or a generous return policy, which is the equivalent of a performance guarantee) is driven by two factors. *First*, offering a generous return policy may result in the retailer not exerting the effort necessary for the success of the new product, a type of moral hazard problem (Chu 1992). Consequently, even though it may be an inexpensive signal (Kirmani and Rao, 2000), manufacturers prefer not to use it. *Second*, a slotting allowance provides a direct economic benefit to the retailer, therefore retailers prefer that manufacturers pay slotting fees rather than engage in excessive advertising.

4. Technically, low demand firms will not mimic this signal only if the associated cost can not be recovered through first period margins (see Kirmani and Rao 2000 for a non-technical explanation of the requirements for a signal to work). If the first period margin compensates for the cost of the slotting allowance, then low demand manufacturers will willingly pay the slotting fee and suffer the downstream consequences of no repeat sales. This behavior generates a pooling equilibrium, and slotting allowances fail to signal. In survey research, it is difficult to assess whether the various

assumptions of signaling models do indeed hold. We assume these assumptions are valid, because otherwise, slotting allowances (to the extent they are signals) should not exist.

5. Lariviere and Padmanabhan's (1997) model also suggests that slotting allowances and wholesale prices may go hand in hand.

6. Additionally, slotting allowances may be illegal. Retailers may be in violation of the Robinson-Patman Act for accepting fees that are not available to all retailers. Further, large manufacturers may be guilty of predatory promotion, since they could hypothetically take control of an "essential facility" by paying the fee (see Cannon and Bloom 1991). This second argument, however, is contrary to the charge that large manufacturers frequently do not pay the fee (see footnote 9, pp. 462-3 in Sullivan (1997)).

7. In the interest of brevity, we do not provide details of our analysis of pretest data. The psychometric properties of our scales can be evaluated from our Phase III survey.

8. The only response that arrived after the cut-off date was found to be an outlier (based on hat diagonal (>. 11) and studentized residual (>2.22) values) and was therefore not included in the analysis. Including this data point in the analysis does not change any of the results, however.

9. Louie (1999) and her colleagues (Louie, Curren and Harich 2000) discuss the problem of hindsight bias, according to which, an actor's current judgment of a past event is influenced by the known outcome. In our case, such a bias ought to have lead to extreme evaluations – failed products would have yielded low ratings, while successful products would have yielded high ratings – resulting in a bimodal distribution on PFAIL. However, our data is uni-modal and normally distributed (mean = 2.88, median = 3.000, mode = 3.000).

10. Since the original model with interaction terms suffered from multi-collinearity, we do not have definitive answers to whether or not H1 and H2 are contingent on product failure. Therefore, we

conducted a *post hoc* analysis to examine the possibility of the expected interaction. Based on a median split on PFAIL, the model when the probability of failure is low ($F_{(3,42)} = 4.39$, $p < .009$, $R^2 = .24$, $R^2_{adj} = .18$) yields the following:

SAAMT = 1.39 –1.02MANINNFOR - .28COST - .02 WP

The model when PFAIL is high is not significant. Seemingly, the effect observed in the full model is driven by behavior associated with potentially successful new product launches.

11. As in Study I, we conducted a *post hoc* analysis to examine the possibility of an interaction. Based on a median split on PFAIL, the following model for when the probability of failure is low approached significance ($F_{(4,53)} = 2.43$, $p < .06$, $R^2 = .16$, $R^2_{adj} = .09$):

SAAMT = 3.08 + .06MANINFOR - .01COST -*.15WP* -.12MLEAD

This model is not significant when PFAIL is high. Apparently, wholesale prices and slotting allowances do not behave as Shaffer (1991) predicted. Seemingly, some manufacturers are able to charge high wholesale prices *and* avoid paying slotting allowances. Additional analysis of the data reveals that the interaction between wholesale price and MLEAD is significant; a median split analysis reveals that wholesale price is significantly negatively related to slotting allowances when market share leadership is high, not otherwise ($F_{(3,39)} = 4.56$, $p < .008$, $R^2 = .26$, $R^2_{adj} = .20$, and WP is significant at $p <. 008$).

12. We are indebted to George John for this observation.

13. This distinction between the two types of problems and their solutions has received considerable scrutiny in the Economics literature. The interested reader is referred to Kreps (1990) for a lucid exposition.

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TABLE 1

Correlation Matrix for Principal Constructs (Retailer Responses)

	SA1	SA2	SA3	MANINFOR1	MANINFOR2	MANINFOR3	COST2	COST3	
SA2	*0.46*								
SA3	*0.53*	*0.62*							
MANINFOR1	-0.11	-0.07	-0.09						
MANINFOR2	-0.19	-0.11	-0.09	*0.50*					
MANINFOR3	-0.09	-0.04	-0.04	*0.33*	*0.63*				
COST1	0.07	0.13	0.10	-0.15	-0.03	0.05			
COST2	0.19	*0.31*	*0.39*	0.00	0.08	0.02	*0.28*		
COST3	-0.05	0.22	0.14	-0.04	0.14	-0.17	*0.34*	*0.37*	

NOTE: Column and row labels refer to scale items. Please refer to Appendix A for the specific items.

[a] Italics indicate correlation significant at $p < .05$

* Reverse coded items.

TABLE 2
Measurement Model and Confirmatory Factor Analysis (Retailer responses)

	LISREL Item-Construct Loading	
Constructs	Standardized	t-value
Slotting Amount		
SA1	0.75 (0.11)	6.78
SA2	0.65 (0.11)	5.75
SA3	0.99 (0.10)	9.80
Manufacturer's Information		
MANINFOR1	1.07 (0.12)*	7.24
MANINFOR2	0.65 (0.13)	4.93
MANINFOR3	0.46 (0.13)	3.67
Cost		
COST1	0.31 (0.13)	2.36
COST2	1.04 (0.22)*	4.73
COST3	0.36 (0.14)	2.66

Note: Goodness of fit Indices for null model:
Normed Fit Index (NFI) = 0.75;
Non-normed Fit Index (NNFI) = 0.72;
Comparative Fit Index (CFI) = 0.81;
Incremental fit Index (IFI) = 0.82;
$\chi^2_{(69)} = 65.27$, $p < .01$

* Standardized coefficients larger than 1 are feasible when factors are correlated (oblique) (Joreskog 1999).

Nested model with Cov (SAAMT, MANINFOR) set to 1.0: $\chi^2_{(69)} = 124.51$; $\Delta\chi^2_{(1)} = 59.24$ is significant at $p<.01$

Nested model with Cov (SAAMT, COST) set to 1.0: $\chi^2_{(69)} = 82.5$; $\Delta\chi^2_{(1)} = 17.23$ is significant at $p<.01$

Nested model with Cov (MANINFOR, COST) set to 1.0: $\chi^2_{(69)} = 129.65$; $\Delta\chi^2_{(1)} = 64.38$ is significant at $p<.01$.

TABLE 3
Covariance matrix of principal constructs (Retailer responses)

Item	SAAMT	MANINFOR	COST
SAAMT	1.00		
MANINFOR	.10 (0.11)	1.00	
COST	.46 (0.13)	.17 (0.11)	1.00

Table 4
Correlation Matrix for Principal Constructs (Manufacturer Responses)

	SA1	SA2	SA3	MANINFOR1	MANINFOR2	MANINFOR3	MLEAD1	MLEAD2	MLEAD3	COST2	COST3
SA2	*0.65*										
SA3	*0.45*	*0.54*									
MANINFOR1	0.06	0.03	0.05								
MANINFOR2	-0.16	-0.11	-0.04	*0.55*							
MANINFOR3	0.03	-0.04	-0.07	*0.59*	*0.48*						
MLEAD1	-0.11	-0.11	-0.17	-0.18	-0.12	-0.18					
MLEAD2	*-0.30*	*-0.30*	-0.23	*-0.28*	-0.15	*-0.31*	*0.64*				
MLEAD3	-0.22	-0.19	-0.23	*-0.27*	-0.16	-0.19	*0.42*	*0.73*			
COST1	0.01	0.03	0.06	-0.02	-0.07	0.03	0.17	0.13	0.03		
COST2	-0.02	-0.02	0.19	0.04	-0.06	-0.05	0.12	0.16	0.18	*0.47*	
COST3	0.13	0.03	0.11	0.06	0.04	-0.03	0.05	0.04	0.06	*0.35*	*0.73*

NOTE: Column and row labels refer to scale items. Please refer to Appendix B for the specific items.
[a] Italics indicate correlation significant at $p < .05$

Table 5
Measurement Model and Confirmatory Factor Analysis (Manufacturer Responses)

Constructs	LISREL Item-Construct Loading	
	Standardized	t-value
Slotting Amount		
SA1	0.82 (0.11)	7.77
SA2	0.96 (0.10)	9.59
SA3	0.69 (0.11)	6.18
Manufacturer's Information		
MANINFOR1	0.85 (0.11)	8.02
MANINFOR2	0.73(0.11)	6.60
MANINFOR3	0.88 (0.11)	8.31
Manufacturer's Market Share Leadership		
MLEAD1	0.52 (0.12)	4.52
MLEAD2	1.09 (0.11)	10.33
MLEAD3	0.71(0.11)	6.21
Cost		
COST1	0.54 (0.12)	4.50
COST2	1.15 (0.11)	10.48
COST3	0.72 (0.12)	6.17

Note: Goodness of fit Indices for null model:
Normed Fit Index (NFI) = 0.76;
Non-normed Fit Index (NNFI) = 0.77;
Comparative Fit Index (CFI) = 0.83;
Incremental fit Index (IFI) = 0.84;
GFI = 0.82;
$\chi^2_{(68)} = 130.07$

* Standardized coefficients larger than 1 are feasible when factors are correlated (oblique) (Joreskog 1999).

Nested model with Cov (SAAMT, MANINFOR) failed to converge
Nested model with Cov (SAAMT, MLEAD) set to 1.0: $\chi^2_{(68)} = 220.39$; $\Delta\chi^2_{(1)} = 90.32$ ($p<.01$)
Nested model with Cov (SAAMT, COST) set to 1.0: $\chi^2_{(68)} = 229.37$; $\Delta\chi^2_{(1)} = 99.3$ ($p<.01$)
Nested model with Cov (MANINFOR, MLEAD) set to 1.0: $\chi^2_{(68)} = 220.67$; $\Delta\chi^2_{(1)} = 90.6$ ($p<.01$)
Nested model with Cov (MANINFOR, COST) set to 1.0: $\chi^2_{(68)} = 213.4$; $\Delta\chi^2_{(1)} = 83.33$ ($p<.01$)
Nested model with Cov (MLEAD, COST) set to 1.0: $\chi^2_{(68)} = 239.57$; $\Delta\chi^2_{(1)} = 109.5$ ($p<.01$)

Table 6
Covariance matrix of principal constructs

Item	MANINFOR	MLEAD	COST	SAAMT
MANINFOR	1.00			
MLEAD	.-0.18	1.00		
	(0.11)			
COST	-0.02	0.09	1.00	
	(0.10)	(0.09)		
SAAMT	-0.04	-0.34	-0.03	1.00
	(0.13)	(0.11)	(0.10)	

THE FIGURE

Summary of Findings

	Role of Manufacturer's Advantage	Role of Retailer's Advantage
Evidence from Retailer's Practices	* Informational advantage leads to a *reduction* in slotting allowances charged	* Cost based efficiencies may yield *higher* slotting allowances
Evidence from Manufacturer's Practices	* Market share leadership leads to a *reduction* in slotting allowances paid * These reductions are accompanied by *higher* wholesale prices	* No significant evidence

APPENDIX A

SCALE ITEMS AND RELIABILITY FOR PRINCIPAL CONSTRUCTS (RETAILER RESPONSES)

Construct	Scale Items	μ[a]	σ[b]	Item-total correlation	α[c]
Slotting Amount SAAMT	Compared to the slotting fees other retailers received for this product, was the amount you received (SA1)	2.74	.74	0.52	0.77
5-point scale anchored at 1= "Much Lower" and 5 = "Much Higher"	Compared to the slotting fees you receive from other vendors, was the amount you received from this vendor (SA2)	2.99	.77	0.59	
	As compared to slotting fees received for other products, the slotting fee received for this product is (SA3)	2.96	.72	0.68	
Information MANINFOR	We know the market for this product as well as our vendors do (reverse coded). (MANINFOR1)	3.12	1.08	0.61	0.75
5-point scale anchored at 1= "Strongly Agree" and 5 = "Strongly Disagree"	This vendor's market research information about this product is better than ours. (MANINFOR2)	2.15	1.03	0.66	
	This vendor has more information about demand for the product than we do. (MANINFOR3)	2.30	1.08	0.61	

Retailer's Costs COST 5-point scale anchored at 1= "Strongly Agree" and 5 = "Strongly Disagree"	If this product fails, we stand to lose a lot of time and money because we allocated expensive shelf space to it. (COST1)	3.29	1.08	0.37	0.60
	It is expensive to restock a shelf to accommodate a new product. (COST2)	2.31	1.13	0.40	
	In this category, a large percentage of shelf space is allocated to established retail products (COST3)	1.70	0.81	0.45	
Probability of new product failure PFAIL 5-point scale anchored at 1= "Strongly Agree" and 5 = "Strongly Disagree"	This product has a good chance of success, because the vendor has been very successful with past new product introductions (reverse coded). (PFAIL1)	3.89	.87	---	---
Wholesale Price WP 5-point scale anchored at 1= "Strongly Agree" and 5 = "Strongly Disagree"	This vendor charges a wholesale price that is very high for this product.	3.38	1.01	-----	-----

[a] Item mean
[b] Standard deviation
[c] Composite inter-item reliability (Cronbach's α)

APPENDIX B

SCALE ITEMS AND RELIABILITY FOR PRINCIPAL CONSTRUCTS (MANUFACTURER RESPONSES)

Construct	Scale Items	μ^a	σ^b	Item-total correlation	α^c
Slotting Amount SAAMT 5-point scale anchored at 1= "Much Lower" and 5 = "Much Higher"	Compared to the slotting fees they receive from other vendors, was the amount this retailer received from you (SA1)	2.93	0.88	0.61	0.78
	Compared to slotting fees paid for other products, was the slotting fee paid for this product (SA2)	3.10	0.89	0.68	
	Compared to the slotting fees you paid other retailers for this product, was the amount you paid to this retailer (SA3)	3.46	0.87	0.55	
Information MANINFOR 5-point scale anchored at 1= "Strongly Agree" and 5 = "Strongly Disagree"	Our marketing research is better than this retailer's. (MANINFOR1)	2.4	1.13	0.69	0.81
	We know the market for this product better than this retailer does. (MANINFOR2)	2.09	0.93	0.64	
	This retailer's market research information about this product is better than ours. (reverse coded) (MANINFOR3)	2.25	1.05	0.69	

Retailer's Costs COST 5-point scale anchored at 1= "Strongly Agree" and 5 = "Strongly Disagree"	If this product fails, the retailer stands to lose a lot of time and money because they allocated expensive shelf space to it. (COST1)	3.75	1.10	0.44	0.77
	For this retailer, it is expensive to restock a shelf to accommodate a new product. (COST2)	3.57	1.18	0.73	
	For this retailer, it is very time consuming to restock a shelf to accommodate a new product. (COST3)	3.57	1.12	0.63	
Manufacturer's Market Share Leadership MLEAD (all items reverse coded)	In this category, we are a market leader. (MLEAD1) (5-point scale anchored at 1= "Strongly Agree" and 5 = "Strongly Disagree").	3.53	1.37	0.58	0.82
	How would you describe your firm's competitive position in this product category (MLEAD2): 1 [Market Share Leader] 2 [Among the top 10%] 3 [Among the top 30%] 4 [Among the top 50%] 5 [Small, niche player]	3.18	1.36	0.81	
	How would you describe your firm's overall competitive position in this industry (MLEAD3): 1 [Market Share Leader] 2 [Among the top 10%] 3 [Among the top 30%] 4 [Among the top 50%] 5 [Small, niche player]	3.07	1.40	0.65	
Probability of new product failure PFAIL 5-point scale anchored at 1= "Among the best ever" and 5 = "Below the norm"	When the product was launched, what was your organization's expectation about its success? Compared to other successful new products launched by your firm, did you expect it to be (PFAIL1)	2.64	1.01	---	---

Wholesale Price WP 5-point scale anchored at 1= "Strongly Agree" and 5 = "Strongly Disagree"	The wholesale price we charged for this product was relatively high.	3.44	1.28	-----	-----

[a] Item mean
[b] Standard deviation
[c] Composite inter-item reliability (Cronbach's α)