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Market environment, assortment policy, and performance of small retailers

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Market Environment, Assortment Policy, and Performance of Small Retailers

Abstract

This study surveys small retail pharmacies to examine the relationship between managers’ perceptions of local market environments, their stated assortment policies, and their reported performance levels for a large product category. Managers report wider assortments when market diversity and market munificence are high. In turn, wider assortments have a positive effect on reported relative category sales and stock. In addition, market uncertainty has a direct negative effect on reported margins. This study controls for both store space as well as the potential direct performance effects of the local market environment faced by small retailers.

Keywords: market environment; assortment; store performance; survey; small retailers
1. Introduction

Small retailers face a complex and changing environment, but one which varies considerably from one store to another. Responsiveness to the local market environment is an important dimension of a market orientation for small retail operations (Kara, Spillan, and DeShields, 2005). In contrast, for reasons of cost-efficiency and brand image, many large chain store retailers have opted for a focused policy of standardisation rather than local adaptation or responsiveness even to the point of abandoning retail sites if they did not favour a chain-wide standardised merchandising format, in spite of anecdotal evidence that “appropriately tailoring” merchandise assortments to local markets can improve gross margins (Aufreiter, Karch, and Smith Shi, 1993). When chain store operations do try to adapt to local market environments, they often do so by grouping stores roughly into clusters (for example, urban, suburban, and rural) believing that it is “too complex to link assortment ranges with local customer needs on a store by store basis” (Beninati, Evans, and McKinney, 1997). Thus, many larger retailers may have put the problem of local market adaptation into the too-hard basket, perhaps because retail management theory offers little or no guidance about it. For example, in a recent discussion of retail competitive strategy, Fox and Sethuraman (2005) note the potential importance of systematic local adaptation of assortments but then terminate, at its outset, any forthcoming review of related theory and research:

The practice of customizing assortments for individual stores is known as micro-marketing. To the extent that assortments can be customized for individual stores cost-effectively, micro-marketing is a valuable competitive weapon. However, because micro-marketing is inherently ad hoc, we will not discuss it in further detail here (p. 201).
Yet, even though there may be little theoretical understanding of this phenomenon, analysts still maintain that the “heterogeneous nature of the marketplace demands that retailers tailor their assortments to local tastes…” (Mantrala, et al., 2009, p. 71) In contrast to assortment, store-specific operational micro-marketing models do exist for space allocation, resulting in, for example, findings that locally adaptive space allocations for food are beneficial for supermarkets while locally adaptive space allocations for non-food are more appropriate for hypermarkets (Campo and Gijsbrechts, 2004). Many retailers, particularly small and medium sized retailers, unfortunately, do not have the information systems, expertise, or managerial resources that allow for precise operational local market adaptation by category and store, which, while perhaps optimisable for space, becomes increasingly complex to implement when one includes the additional core merchandising variables of assortment and stock level. Thus, many retailers, particularly small independent ones, must establish store-level policies for assortment and stock in a largely judgmental manner. Nevertheless, even judgmentally-based local market adaptation of assortments and stocks may not be completely ad hoc but may depend in a systematic manner on store managers’ perceptions of the local environment. Thus, the primary objective of this study is to examine the retailing phenomenon of judgment-based adaptation of assortment and stock policies to the local market environment.

How managers of small retailers develop assortment and stock policies in response to the market environment may or may not necessarily follow operational models that might be better suited to larger stores. For example, inventory theory suggests that, for staple stocks at least, higher sales volatility requires greater stock as a buffer to avoid stock-outs (for example, Dubelaar, Chow, and Larson, 2001). Furthermore, from an operations management perspective, a store’s inventory management system should capture relationships between sales volatility and stock at the level of the individual product item or stock-keeping unit (SKU), and act on such information by adapting stock levels accordingly and relatively
automatically. Such a scenario certainly applies at the SKU level for retailers who have implemented such systems and whose store managers either have no autonomy to make stocking decisions or who lack the resources to judgmentally oversee SKU level stocks across thousands of SKUs. However, many managers of small retail stores do make judgmental and autonomous (but not automated) stocking decisions without the aid of such systems. And, more importantly, at the much more aggregated level of a storewide assortment or a broad merchandise category, managers may act more in response to their overall perception of market uncertainty than attempt to calibrate stocks to meet the historical volatility of sales for each of the vast number of individual product items or SKUs they may stock. Thus, although, for example, relatively high sales volatility should operationally attract greater (buffer) stocks at the SKU level, greater perceived uncertainty about the overall market environment may have an entirely different effect on store managers’ stocking behavior at the level of a retail store or a large category containing a vast number of potentially unrelated SKUs. Specifically, store managers may react to greater perceived market uncertainty by actually engaging in much more cautious stocking behaviour for a store or category as a whole than would be appropriate for a single product item facing volatile demand. Thus, a second objective of this study is to consider how the response of managers of small retail stores to the perceived market environment might or might not correspond to conventional operations management principles.

2. Development of Hypotheses

This section presents arguments for a number of hypotheses that explain how stated retailer merchandising policies might respond to environmental perceptions and, in turn, how these policies might affect stated store performance. Figure 1 depicts the general theoretical framework within which this research lies.
In general, the merchandising policies of retailers are, in part, a response to a number of conditions that retailers face in their local environment (Grewal, et al., 1999). Furthermore, retailer performance depends broadly on retailer (store) characteristics, store merchandising policies, and environmental conditions (Reinartz and Kumar, 1999). Important dimensions of the market environment facing a retail store are its diversity, uncertainty, and munificence. Conceptually, these constructs have fairly clear definitions:

*Market Diversity* refers to the degree to which customers differ from one another. This is a very straightforward construct that reflects customer differences such as demographics, lifestyles and preferences.

*Market Uncertainty* refers to the overall uncertainty regarding market demand conditions. This construct (following, for example, Achrol and Stern (1988) or Achrol and Etzel (2003)) is a market or output-level manifestation of the more generic construct of environmental “dynamism” (following, for example, Gilley, McGee, and Rasheed (2004)).

*Market Munificence* refers to the strength of market demand and its potential for growth. Munificence broadly reflects the favourability of market conditions, the growth potential of the market, and the availability of resources. Market munificence captures the potential buying power in a market. Clearly, some retail stores are in locations with greater buying power than are others.

In contrast to an operations management approach that views the objective environment as a set of information inputs which can be processed to set optimal policies, market environment dimensions such as diversity, uncertainty, and munificence, as managerial perceptions, can directly affect managerial judgments in setting policies. Thus, the hypotheses to follow concern the relationships between managerial perceptions of these
market environment dimensions, reported store merchandising policies, and reported store performance. All of these hypotheses are stated with regards to assortment and stocking policies and performance for a fairly large product category, such as, for example, the health and beauty aid (HBA) product category, the focal category to be examined in this empirical study, in the context of small retailers, such as, in this case, small retail pharmacies.

2.1 Market Diversity and Assortment

One of the most fundamental policy decisions facing a retailer involves setting policies for merchandise assortments. From the perspective of demand management, assortments are a basic means of responding to the diversity of market preferences. Nevertheless, they are perhaps the most flexibly controllable tools available to retail management for adapting to local market diversity. In particular, some stores lie in more diverse trading areas than do others (Kamakura, Lenartowicz, and Ratchford, 1996; Campo and Gijsbrechts, 2004). Between stores, some product assortment differences clearly correspond to some idiosyncratic market differences. For example, store-specific demographic patterns, such as age structure, drive assortments of pharmacies in predictable directions for such product groups as infant care and aged care products (Fox and Sethuraman, 2005). Testable theory, however, can only examine generalised effects of environmental dimensions, such as market diversity, but can never hope to make predictions about the effects of the vast number of specific environmental elements (such as, for example, demographic or psychographic patterns or segment growth rates) on specific assortment attributes (such as, for example, SKU profiles in terms of brands, package sizes, or flavours). Thus, in general terms, under relatively diverse market conditions, a retailer might stock relatively wider assortments in order to match the expectations of relatively heterogeneous
local customers (Pessemier, 1980). We thus state the following basic hypothesis about how a small store’s perceived market diversity affects its stated assortment policy:

H1: The greater the perceived market diversity facing a small retail store, the wider its stated assortment within a large merchandise category.

2.2 Market Uncertainty, Assortment, Stock, and Performance

Empirical research in marketing channels has found that demand volatility, in particular, is a significant predictor of the level of perceived environmental uncertainty that retailers face when making stocking decisions (Achrol and Stern, 1988). Such volatility can affect the merchandising risk perception associated with lost sales and lost customers (Grewal, et al., 1999). Speaking from a very broad channel structure and process perspective, Achrol and Etzel (2003) claim that “dynamic markets require channels that are less centralised in marketing strategies and more finely tuned to local preferences and contingencies” (p. 147). Such “fine tuning” could arguably manifest itself in the careful selection of an assortment subset that best matches local customer preferences, implying a narrow assortment for a large merchandise category. Thus:

H2: The greater the perceived market uncertainty facing a small retail store, the narrower its stated assortment in a large category.

In line with classic theory of merchandise risk shifting (Bucklin, 1966), higher perceived market uncertainty should lead to more cautious merchandising judgements and, as a particular manifestation, lower overall merchandise investments by retail store management. In general, uncertainty manifests itself at three levels: first, as an environmental state, then, in terms of environmental effects, and, finally, with regard to the consequences of actions. For example, Milliken (1987) classifies environmental uncertainty as 1) “state uncertainty” (the inability to assign probabilities to states of nature), 2) “effect uncertainty” (the lack of
knowledge about cause-effect relationships, particularly about how states of nature will affect an organisation), and 3) “response uncertainty” (the inability to predict outcomes of decisions). The first and third types of uncertainty are most relevant here. That is, although the construct of market uncertainty used here is a form of “state” uncertainty in Milliken’s (1987) sense, it also implies “response” uncertainty about what to stock and how much to stock in order to achieve performance objectives. By construing Bucklin’s (1966) theory of postponement-speculation with regard to stock levels (one of Bucklin’s core distribution “service outputs”) rather than delivery time (the latter being the most well-known application), greater “response” uncertainty arising from greater perceived market uncertainty favours relatively lower stock levels as a means of shifting merchandising risk. Thus:

H3: The greater the perceived market uncertainty facing a small retail store, the lower its stated total stock level for a large category.

Regardless of assortment policy, market uncertainty might directly affect performance. In particular, market uncertainty might not only affect overall (response) uncertainty about how store or category wide assortments and stocks affect performance, but might also, in the absence of effective operational inventory management systems, make accurate stocking levels per SKU difficult to establish, increasing both the likelihood of stock-outs and the possibility of overstocking and poor stock-turn (Dubelaar, Chow, and Larson, 2001). As will be argued here, the result could be lower than expected margins. On the other hand, demand variation (as a potential source of market uncertainty) only increases inventory carrying costs which are not, from an accounting standpoint, part of the retail price (and margin) calculation. Furthermore, it is also true that optimal retail margins are a function of demand elasticities and, in practice, prices and margins are often also subject to supplier control either directly (with promotions or resale restrictions) or perhaps indirectly (for
example, via proliferation of branded variants (Bergen, Dutta, and Shugan, 1996)). Optimal price setting and supplier control, however, generally operate at the level of a single product and brand. The situation will be very different for a large retail category (such as health and beauty aids) or even more so, at a store-wide level. A store manager at a small retailer generally cannot observe or account for product item elasticities across the many products stocked and, furthermore, supplier control will inevitably vary across products and brands. At the level of a large category or the store as a whole, managers perceive the market in a more aggregated fashion. Although less precise than determining optimal prices and margins given perfect information, autonomous managers of small retailers nevertheless do set retail prices. Arguably, these prices reflect expected sales potential in the local market, and, in terms of the actual margins achieved after price reductions, they may reflect its uncertainty. While stock-out losses due to uncertainty are manifestly sales and margin dollar losses (Dubelaar, Chow, and Larson, 2001), poor expected stock-turn can directly affect prices and margins insofar as it prompts markdowns (Pessemier, 1980). In general, the decision-making or response uncertainty precipitated by relatively high market uncertainty can imply that small retailers will make merchandising errors in terms of both assortment and stock levels, resulting in pressure to reduce margins to clear unwanted stock. Such a process suggests the following hypothesis:

H4: The greater the perceived market uncertainty facing a small retail store, the lower its reported margins for a large category.

Market uncertainty should affect margin performance but not sales performance. The reason is simply that such uncertainty captures variability in sales which makes correct stock levels difficult to determine. Retailers generally handle excess stock with markdowns to clear unsold stock, thus depressing margins. Although it is true that uncertainty can also increase stock-out probabilities and thus adversely affect sales performance, such effects are likely to
occur at a product item (SKU) level but are much less likely to occur at a storewide level, the level of analysis in this study, simply because, at a storewide level, there are likely to be plenty of readily available substitute SKUs (e.g., other brands, flavours, scents, sizes, price points/quality grades, etc.) within and even across categories. This is especially true for convenient specialty stores such as chemists.

2.3 Market Munificence, Assortment, and Stock

Intuitively, a munificent market should generally allow managers to offer relatively strong and aggressive merchandising programs. Although intuitively plausible, it has not been clearly established whether retail store merchandising might consist of relatively wider assortments and deeper stock levels under relatively strong or munificent market conditions than under relatively weak market conditions. While it is easy to observe wider and deeper assortments when comparing, say, a flagship downtown branch against suburban branches in a department store chain (for example, Cadeaux (1994)), it is more difficult to develop and test a more general proposition about how market munificence affects merchandising policy. In research on marketing channels, such market or “output sector” munificence has been associated with decreasing supplier control over downstream dealers (Etgar, 1977; Dwyer and Oh, 1987). However, this effect may depend on bilateral interdependence in the channel (Kim, 2002) and does not have unambiguous implications for retailer assortments in that overall assortments in a category are the product of both the number of brands and the number of SKUs stocked per brand. For instance, less supplier control may arguably allow retailers to reduce exclusive dealing and stock wider assortments of brands, but simultaneously it may induce retailers to stock fewer SKUs within brand ranges (following Cadeaux (1992) and Cadeaux (1997)) yielding ambiguous effects on total assortments and stocks. Even though supplier control is not modeled as part of the present study, relatively
munificent environments nevertheless give retailers greater confidence to offer wider assortments. Thus:

H5: The greater the perceived market munificence facing a small retail store, the wider its stated assortment in a large category.

A similar principle should also apply for stock levels, particularly for stock level as a variable that depends on expected sales potential. However, market munificence is not the same as reported sales at the store level, but rather is conceptualised as a perception of the environment by the store manager. Even though strategic actions (particularly of large share firms) can affect environmental perceptions (particularly those held by competitors and by downstream dealers), it does not seem plausible that a small retail store manager’s own merchandising actions would affect environmental perceptions held by the same retail store manager. Thus, in line with the general arguments in favor of H5:

H6. The greater the perceived market munificence facing a small retail store, the greater the stated stock level for a large category.

2.4 Assortment and Sales

Relatively wide retail assortments allow relatively more consumer wants (and/or the wants of relatively more consumers) to be satisfied on relatively more purchase occasions - increasing the probability of purchase and sales (Dhar, Hoch, and Kumar, 2001). Assortment variety should thus have positive effects on customer retention and attraction (Grewal, et al., 1999). However, a recent review suggests that retailers should try to seek an optimal assortment size rather than simply try to increase assortments without bound (Broniarczyk and Hoyer, 2005). Ideally, some sort of inverted “U” hypothesis might be best. Yet, the scope of the present study suggests that a simple positive linear relationship may yet remain quite valid. That is, in the context of a survey of managerial perceptions (for both independent
reported assortment and dependent reported sales variables), it is difficult if not impossible to consider a non-linear sales response function. Thus, to the extent that managers of small retailers operate (or have learned to operate) within a range of feasible and available assortment policies, assortment size should have at least a monotonically increasing, if not a linear effect on reported sales. Thus, given the scope of this study, a basic hypothesis is:

H7: The wider a store’s stated assortment in a large category, the greater that store’s reported sales in the category relative to other stores.

2.5 Assortment and Margins

Retailers with relatively wide assortments should also hold a competitive advantage over those with narrower assortments because they offer enhanced consumer value through one-stop shopping and choice, reducing consumer search effort. Wide assortments should imply higher probabilities of customer satisfaction on shopping trips and, overall, should offer retailers a source of competitive advantage, and thus the ability to capitalise on differentiation with higher prices and margins. On one hand, and at the manufacturer level, relatively wide assortments do attract relatively greater margins (Scherer, 1979). On the other hand, at the retail level, category assortment is negatively related to category margin in a study of one supermarket (Chiang and Wilcox, 1997). Another study, which tests a microeconomic theory of consumer search cost and store profit with evidence from fourteen Chicago catalog showroom retailers, suggests a positive relationship between retail category assortments and retail margins (Bergen, Dutta, and Shugan, 1996). Furthermore, the assortment-margin relationship may even work in both directions. That is, greater margins can arguably attract wider assortments. For example, van Ryzin and Mahajan (1999) suggest that higher margins create incentives for retailers to stock a wider variety of products. Nevertheless, assortment rather than margin makes more sense as the determining variable in
the context of the present study which operates at the assortment level of a large category rather than at the more micro level of within-brand assortments. But since category assortments are the product both of an assortment of brands and the within-brand selection of SKUs, this effect becomes complex. Yet, following Bergen, Dutta, and Shugan (1996), manufacturers might seek to proliferate variants in order to protect retailer margins. In which case, retailers who do stock a greater number of such variants (across all manufacturers/suppliers) will face less (unobserved) intra-brand competition and thus will receive relatively greater margins. Although the existing theory and evidence is not conclusive, the following hypothesis remains plausible:

H8: The relatively wider a store’s stated assortment in a category, the greater the store’s reported margin in a large category relative to competing stores.

2.6 Assortment and Stock

Managers of small retail stores may believe (correctly or not) that greater assortments will in fact yield greater sales and that such greater sales will thus require greater stock to avoid stock-outs. That is, in part and in effect, such managers may believe in the truth of H7 (that wider assortments lead to higher sales). Such an analysis of a manager’s mental model, however, would not only be beyond the scope of the present study but would constitute a rather weak test of the proposed theory of store manager perceptions. Thus, instead, this study seeks to independently test H7 (as well as H8) without directly asking managers about their beliefs about any such relationships. At its logical extreme, one could certainly develop a cross-case study of managers’ mental models of the merchandising planning process without ever testing any of the underlying relationships between the policy planning variables. In contrast, the approach taken here seeks to disentangle the otherwise potentially hidden relationships between managerial perceptions about environment, policy, and performance
variables but not examine managerial beliefs about the *relationships* between the underlying objective variables. Thus, although store stock, in itself, is not necessarily a performance outcome, it is closely related to other important outcomes (such as, for example, stock productivity measures or the attainment of target stock-turn). Stock may also play a mediating role in modeling the effects of environmental and assortment variables on sales and margin performance (as a structural equation model in this study will test). Thus, it is important to understand how reported assortments affect reported stock levels. Some well known trade-offs associated with increasing retail assortments imply such effects. These effects arise from the minimum lot sizes available from wholesalers or manufacturers along with the minimum retail stock planning levels required to meet expected SKU demand. Due to minimum order quantities and minimum stocking levels to avoid stock-outs, wide assortments require greater stocks than narrower assortments (Pessemier, 1980; Dubelaar, Chow, and Larson, 2001). Thus, the relationship *between* store manager’s perceptions should conform to these principles:

H9: The relatively wider a store’s stated assortment in a large category, the relatively greater the store’s reported stock in the category.

3. Research Methods

3.1 Design

Across all of the hypotheses, the theory to be tested calls for perceptual data, particularly the perceptions of autonomous store managers of small retailers. Thus, the research design is a cross-sectional survey of small independent retail outlets rather than an examination of a large retail chain with highly centralised planning. The prevailing independent retail pharmacy setting of New South Wales, Australia facilitates data collection and helps separate the observed phenomena from the effects of centralised planning that
might exist in large chain store operations. Since legislation in New South Wales, in effect, prohibits large scale chain store development in the retail pharmacy industry, this industry is a natural candidate and simultaneously has the advantage of controlling for inter-retail type differences. Furthermore, the research design tests all of the hypotheses by controlling for some effects that lie outside of the conceptual framework. Some of these controls are by design (for example, to exclude inter-industry differences by sampling stores within a single class of retail trade, here retail pharmacies). Other controls operate via measurement and statistical control (for example, for store selling space).

3.2 Sample

The sampling frame consists of 1,100 independent retail pharmacies in New South Wales. An independent pharmacy is one that is owned and/or managed as a separate, standalone entity with decision making centered in the store, and made by the pharmacist (who is also the store manager). Legislation restricting ownership of pharmacies to pharmacists has created a fragmented retail industry in New South Wales consisting largely of independent pharmacies (KordaMentha Research Unit, 2006). Specifically relevant to this study, almost all merchandising decisions are made within the store. In some cases, the pharmacies are part of a larger cooperative, in which case they stock certain standard product ranges, but, even for these ranges, the pharmacist/manager still determines stock levels within the store. As these are small retailers, inventory management does not necessarily follow the operations management principles and processes that guide larger operations. Further, pharmacists/managers often have only rudimentary training in business management, with most learning by doing. This sampling frame thus reflects a large number of small retailing operations in which the store owner/manager must make decisions on inventory without the benefit of advanced inventory management tools. Pharmacies in New South Wales sell three
types of products: prescription medicines, non-prescription medicines (so-called “pharmacy medicines” which only pharmacies can sell), and general retail merchandise, which mostly consists of health and beauty aid or “HBA” products (KordaMentha Research Unit, 2006). The focus of this study is on the HBA or general retail merchandise category at these pharmacies. HBA assortments and stocks are particularly appropriate since they are significantly more discretionary than pharmaceutical stocks which are often subject to standardised stocking requirements.

3.3 Data

The Pharmacy Guild of New South Wales provided names and addresses of store managers (pharmacists), and all 1,100 members of the Guild who owned one or more stores received the survey instrument. In this way, the manager of every store in the state received a survey instrument. Instructions requested that respondents who owned or managed more than one store were to respond only for the store in which they received the survey. A total of 393 responded, a response rate of 35 percent. The average store size among respondents was 147 square meters (with a standard deviation of 109) of which an average of 115 square meters was selling space (standard deviation 93) including an average of 42 square meters (standard deviation of 28) devoted to “retail” (that is, the health and beauty aids category). Thus, on average, about 37 percent of the selling space was devoted to the HBA category. Comparisons of the data provided with data available both from the government census on the pharmacy industry and from the Pharmacy Guild on their members showed no significant patterns. This comparison reveals no response biases implying that the data reasonably represent the members of the Pharmacy Guild.

Nine of the responses contained some missing data (less than 2 percent of each record). An Expectation Maximisation (EM) procedure on SPSS replaced the missing values.
3.4 Measures

The survey instrument addresses store manager perceptions of the store environment, reported store assortment and stock policies, and reported performance for the HBA category as well as reported selling space, a control variable. Except for selling space, which is in square meters, the instrument measures items on seven-point semantic differential scales. Table 1 depicts the items used in this study. The survey instrument was developed with the cooperation of industry representatives and similar versions had previously been implemented three times in health and beauty based stores in two other countries (twice in Canada, once in New Zealand). Self-report data on performance outcomes which have hard measures are not ideal; however, discussions with the Pharmacy Guild indicated that the pharmacists would be unwilling to release hard data of a commercially sensitive nature such as sales and margin performance, thus the self-report measures were developed with a view to overcoming the pharmacists’ reluctance to share data while still adequately capturing the information required. Table 2 presents the descriptive statistics for all of the measured variables and the correlation matrix among these variables.

---Table 1 here---

---Table 2 here---

Evidence of construct validity for the self-report measures of sales and margin performance and for selling space exists in a separate sample. In one previous implementation of the current instrument, in a relatively centralised chain situation, data were also available from the organisation’s merchandising information system. The space and the sales and margin performance scales were tested in Canada on a sample of 74 franchised pharmacies. The results of the self-reported scales were compared to the actual sales figures for the stores from that chain. The correlation between self reported and actual figures for a scale which
represents total sales of the store was highly significant and in excess of 0.85 ($p < .001$). A similar scale for gross margin revealed similar results. The correlation between self-reported and actual gross margins was lower, but still highly significant at 0.41 ($p < .002$). A correlation of 0.41 would be low for an attempt to demonstrate convergent validity, however, for a demonstration of construct validity, that is, to show that there is a strong relationship between perceptual and hard measures, a correlation of 0.41 is highly significant. Finally, the reported size of selling space scale and actual recorded total selling space were correlated at 0.92 ($p < .001$). The results of the pre-test therefore indicated that, in this setting, self-reports of various measures could be used to collect reliable data and, in addition, the instrument works equally well in Canada, New Zealand, and Australia (Dubelaar, Bhargava, and Ferrarin, 2002).

This study uses multiple indicator measures for the market environment constructs of market diversity, market uncertainty, and market munificence. However, the study measures the assortment, stock, and performance constructs with single-item scales. Although these variables are self-reports subject to error, they are clearly not abstract or latent constructs. Thus, using a latent construct approach to scale development for these would not be appropriate and would have potentially led to a rather meaningless proliferation of redundant items, mostly differing in syntax rather than terminology (Bergkvist and Rossiter, 2007). For example, there are few terms that closely relate to “sales,” “number of different stock-keeping units,” or “selling space” other than these terms themselves. Sales, assortment, space, stock, and margin are concrete and not abstract constructs and the items used to measure these have self-evident meanings for both respondents and analysts. Thus, unlike such abstract constructs as conflict, trust, power, satisfaction, or relationship strength, these constructs do not lend themselves to a latent scaling approach.
3.5 Analysis

Confirmatory factor analysis proceeded by creating a measurement model in AMOS 5 for the multiple indicator constructs, market munificence, market uncertainty, and market diversity. The fit of the model is quite good (Chi Square of 56.1 with 52 df, for a $p$-value of 0.325, $N$=393). Because self-report data are prone to common method bias, a structural model that includes a common method factor is used to check the data for method bias. This factor is completely insignificant. Using the Cote and Buckley (1987) approach to assess common method variance, the analysis does not reject the null hypothesis that there is no common method factor in the data. The four models tested are:

- **M1** – Null Model: Chi Square 1958.4, 91 df
- **M2** – Method Factor only model Chi Square 1073.4, 76 df
- **M3** – Trait Factor only model Chi Square 56.1, 52 df
- **M4** – Trait and Method Factor model Chi Square 36.8, 39 df

The M3-M4 test for a method factor is not significant at Chi Square difference of 19.3 with 13 degrees of freedom ($p$-value of 0.116). By the method described by Cote and Buckley (1987), this result directly contradicts the presence of a method factor.

Exploratory analyses indicated that normality assumptions for most variables hold well. A structural model shows a good fit for the main effects. The measurement model Chi Square is 56.1 with 51 df ($p$-value 0.325). The structural model Chi Square is 67.2 with 60 df for a $p$-value of 0.244, with $N$=393. The Chi Square difference between the measurement model and structural model is insignificant at 11.1 and 9 df for a $p$-value of 0.269. Figure 2 shows the path diagram. For clarity, this diagram omits the covariances among the independent variables (Space, Market Munificence, Market Diversity, and Market Uncertainty); rather, these covariances appear below the path diagram. The power of the
model is better than 0.9, which is excellent given the exemplary fit the model shows (McQuitty, 2004).

---Figure 2 here---

Direct links between market munificence and margin and between margin and sales augment the model and, though not hypothesised, are plausible as controls on performance and allow for a better overall fit. The results section discusses these specific non-hypothesised effects, their rationale, and interpretation. In general, when using a structural equation model that includes all variables represented in all hypotheses, it is invariably the case that some unhypothesised effects exist whose inclusion affects model fit to the data. The criteria for inclusion of such additional effects or paths include general plausibility as well as fit with the data, but not strict conformity to the theory under examination.

4. Results

The structural equation model in Figure 2 tests all of the hypotheses (H1-H9) simultaneously. H1 states that market diversity would have a positive effect on store assortment. The structural equation model offers only rather weak support for this hypothesis. While the effect is significant ($t=2.17$), the coefficient is quite small (0.12). According to H2 and H3, market uncertainty would have negative effects on both store assortment and store stock levels. The data do not support these hypotheses as neither effect was significant. H4 predicts that market uncertainty would have a negative effect on store margins. The structural equation model supports this hypothesis with a coefficient of -0.14 ($t=-2.63$). According to H5 and H6, market munificence would have positive effects on both store assortment and store stock, respectively. The structural equation model supports H5 with a coefficient of 0.39 ($t=4.50$). Although the direct link between market munificence and stock is not significant, a
strong indirect effect exists via assortment. The size of this effect (0.39*1.07=0.42) supports H6. H7 hypothesizes that store assortment would have a positive effect on store sales. The structural equation model results which show a coefficient of 0.80 (t=6.37) support this hypothesis. H8 states that store assortment would have a positive effect on store margin. The structural equation model shows only a marginal effect (coefficient 0.15 (t=1.86). Although the effect is not quite significant, the data come close to supporting this hypothesis. The final hypothesis, H9, claims that store assortment would have a positive effect on store stock. The structural equation model strongly supports this hypothesis with a coefficient of 1.07 (t=6.92).

The structural equation model also shows significant effects of margin on sales (0.41, t=7.39) and of market munificence on margin (0.28, t=2.95). Neither of these effects lies within the hypotheses nor within the scope of the theory being tested, but the specification that includes these effects allows for a better overall fit to the data than one which omits them. Furthermore, although market munificence should affect sales, the effect appears to operate indirectly via margin. Perhaps such an outcome arises when a relatively favourable market environment allows a retailer to obtain stronger prices and average better margins across a large category. Since, from an accounting standpoint at least, sales are a product of unit volume and prices, higher margins will also mean higher sales (obviously not in the sense of the economics of demand for a product, but in the context of a survey of managers’ perceptions of performance relative to stores of a similar type and size that lie in different local markets). Again, neither of these effects lies within the scope of the hypotheses.

To summarise the hypothesised effects overall, Table 3 reviews all of the hypotheses and indicates whether or not they are supported by the results.

---Table 3 here---
5. Discussion and Implications for Theory

Most of the hypotheses (specifically, H1-H3, H5, and H6) concern the adaptation of store merchandising policies to environmental conditions. They rest on arguments about how store managers adapt (over time) to environments and make correct policy adaptations. They assume that managers make correct choices, either through correct analysis or through feedback from experience, in this case merchandising experience. The support for H1 implies that perceived market diversity has a positive effect on reported assortment size. Such a relationship between perceptions and reported policies might arise over time from a learning process in which store management that had stocked wider assortments under homogeneous market conditions would eventually discover that such a policy was less effective than one of stocking narrower and more focused assortments (for example, perhaps, because of poor stock-turn outcomes). In principle, such adaptations can take time and require all observed cases to have developed equivalent levels of experience and expertise. Yet, in spite of variations in expertise and experience levels in the sample of store managers, the results support several important hypotheses about effects of the market environment on reported merchandising policies.

H2 and H3, which the results do not support, claim that perceived uncertainty about the market creates a risk-averse merchandising response of relatively narrower assortments and thinner stocks. The lack of support for these hypotheses may instead suggest that the merchandising response to market uncertainty for store managers may not be as coherent as is their response to more visible environmental dimensions such as market diversity or market munificence.

In spite of the lack of systematic merchandising response to market uncertainty, the support for H4, that lower margins would prevail under conditions of greater market
uncertainty, is consistent with the general argument that such uncertainty increases merchandising errors and thus increases the likelihood of price reductions to clear poorly moving stock. Thus, actual margins achieved after price reductions may reflect the overall market uncertainty facing a category or store and may arise regardless of the direction of the assortment or stock response to uncertainty or at least may prevail in a population of managers that does not respond to greater perceived market uncertainty with more conservative assortment and stocking policies.

The results in support of H5, that greater market munificence has a positive effect on the size of assortments, endorse a general argument that greater munificence reflects greater confidence in market potential and a greater perception that market conditions generally favor exploitation and expansion by a retailer (Achrol and Etzel, 2003). One manifestation of such a perception may be a willingness to offer wider assortments.

Although the results did not show a direct effect of munificence on stock, the indirect effect of perceived market munificence on reported stock via its effect on assortment supports H6, which treats stock level as a dependent variable affected by expected sales potential (here conceptualized as market munificence).

The support for the hypothesised effects of assortment policies on performance outcomes (specifically, H7 and H8) reflect general theories of assortment effects. These results not only serve as validation and context checks but also contribute significant cross-small retailer survey-based evidence to a large body of research that examines performance effects of assortments by using store-level scanner and archival-based planning and performance measures, on-line field experiments, or laboratory experiments with consumers.

The support for H9, that wide assortments increase stock, confirms basic merchandising principles (Pessemier, 1980; Dubelaar, Chow, and Larson, 2001) and thus helps validate the integrity of the merchandise management process used by the small retail
stores in this sample. Thus, this hypothesis functions here to help explain the merchandising process underlying other parts of the theory tested in this study rather than, in itself, contributing to a direct test of this theory. However, the discussion preceding the presentation of H9 notes that this hypothesis does more than describe a set of beliefs held by retail managers since it tests the relationship between two independently measured self-reported variables rather than asking for agreement from managers that such a relationship holds.

6. Implications for Management

Arguably, managers of small retail stores monitor category sales and margin performance and may often have a generally good understanding of some basic merchandising performance effects. This study confirms some of these effects such as that of assortment on stock level, and that of stock level on sales. It is much less likely that such managers systematically understand how merchandising policies might adapt to market environmental conditions and how adaptation might affect performance. The theory and survey results presented here offer some insight into these effects. In particular, they suggest that small retailers do react in some predictable ways to differing market environmental conditions (whether they know it or not). Specifically, managers of these retailers report wider assortments when their local market is relatively more diverse (when customers differ from each other) and when the market is relatively more munificent (when it has greater strength and potential for growth). In a nutshell, the results shown in Figure 2 clearly show that, after taking selling space into account, within the local market environment, diversity and munificence appear to be the strongest drivers of store assortment with relatively wider assortments in turn driving both relatively greater stock and relatively greater sales levels than would be the case in less diverse or munificent environments. The results also show that relatively wider assortments are not unambiguously beneficial for a small retail store since
while they tend to increase reported sales (and to a lesser extent reported profit margins), they also lead to higher stock levels and thus may have ambiguous consequences for the sales and margin productivity of stock. Furthermore, although managers do not appear to reduce assortment or stock in the face of uncertain markets, they do appear to pay a price for market uncertainty which has a direct negative effect on reported store profit margin, most likely because market uncertainty increases the pressure for store managers to mark-down merchandise to clear unwanted stock.

7. Limitations and Future Research

There are a number of limitations to these conclusions. Although the results support a variety of hypothesised effects, other potentially explanatory factors may operate, some controllable and largely internal and others less controllable and more environmental. Even given the research objective of focusing on environmental determinants, the scope of the environmental variables may be too narrow. Besides the market environment dimensions examined here, there are other environmental factors that might influence, as antecedents, not only the assortment and stock planning variables but also potentially interact with their performance effects. In particular, this study omitted supplier power effects (for example, as manifested via slotting allowances, category management, and other mechanisms) which are clearly important in the contemporary retailing environment, including that facing small retail pharmacies. However, the theoretical model in this study focuses on understanding retail store merchandising from a market environment perspective rather than from a dyadic or relational perspective such as power. Furthermore, the research design works to control for relational effects such as power since it operates within one retail industry (independent retail pharmacies) where retailer power is relatively constant (but low) across stores and not variable as it might be in a survey across different retail classes of trade (for example, one that
included large supermarkets and discounters as well as small independent pharmacies). In contrast to power, the market environment does vary across stores within this industry. Furthermore, since the merchandising and performance measures operate not only across suppliers but across product subcategories at a broad product level (that is, HBA), this study in effect assumes that individual supplier (brand) power is not only aggregated within stores but also is not systematically or measurably variable across stores. Although the literature already has a number of good studies of power effects on merchandising practices, future research might benefit by relaxing some assumptions and by developing an explicitly integrated model that includes both the perceived market environment at the store level as well as relational effects such as supplier power. Such an integrated design that considered both within-industry differences in store market environments as well as between-industry power effects would require a significantly larger sample (across types of retailers as well as across subcategories) and pose other formidable research design challenges.

Finally, the performance outcomes in this study use survey-based managerial performance perceptions, which, even though highly correlated with hard performance outcomes in a separate test of the instrument, are less than ideal. Although extremely difficult to obtain in a large-scale survey of small independent retailers, future work could attempt to include more objective performance information to further develop and extend this line of research as well as attempt to examine any generalisations that may or may not hold across the various levels of merchandise planning and performance.

8. Conclusion

In spite of its limitations, this study clearly demonstrates how and why small retail managers’ merchandising policies for assortment and stock in a substantial product category might respond to perceptions of the market environment. Furthermore, this study not only
shows how such merchandising policies will in turn affect reported performance for such retailers but also indicates how certain dimensions of the market environment themselves might have direct effects on their performance. This study thus contributes to knowledge about local market adaptation of store assortments and stock for a large category. Large and medium sized chains as well as independent retailers such as those in this study can potentially benefit by adapting assortments and stock levels for such categories to store-varying conditions of market diversity and market munificence, although further research would have to examine the costs as well as the benefits of such adaptive responses. Furthermore, this study suggests that operational stock management principles may not apply as well at a large category level as they might at an SKU level nor might they necessarily always be manifested in the relationship between managerially stated policies and performance results. Finally, this study contributes to an important stream of studies about the sales effects of retail assortments by providing evidence of a positive effect of stated assortments on reported sales for a large sample of small independent retailers. While previous research on sales effects of assortments involves cross-category studies at relatively large retailers such as supermarkets as well as tests in on-line settings, the results from this study offer strong survey-based evidence of such effects in a large sample of small retailers for a significant product category. This study also goes beyond other published studies of the performance effects of assortments by taking into account market environment antecedents of these effects and by controlling for both store space as well as the potential direct performance effects of the local market environment faced by small retailers.
References


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<th>Measure(s)</th>
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</thead>
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<td>How similar are customers in terms of</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Demographic characteristics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Lifestyle characteristics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Product value preferences</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(three items, reverse scaled)</td>
</tr>
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<td>Perceived Market Environment</td>
<td>Market Munificence</td>
<td>How high or low is:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Economic growth potential in market area</td>
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<tr>
<td></td>
<td></td>
<td>• Demand for non-pharmacy items</td>
</tr>
<tr>
<td></td>
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<td>• General consumer demand conditions</td>
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<td>• Overall sales trend</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Business cycle</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Demand</td>
</tr>
<tr>
<td></td>
<td></td>
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</tr>
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<td>Merchandising Policy</td>
<td>Store Assortment</td>
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<td></td>
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<tr>
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<td>(single item)</td>
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<td>Store Stock</td>
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</tr>
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<td></td>
<td>dollar value of inventory typically on hand in total front store</td>
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<td>Performance</td>
<td>Sales</td>
<td>Relative to other pharmacies, how well does the store perform in terms of</td>
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<td>(other) retail sales</td>
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<td></td>
<td>(single item)</td>
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<td>Margin</td>
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<td>average gross profit on total other retail sales</td>
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Table 2
Descriptive Statistics and Correlation Matrix

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<td>.632**</td>
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<td>.128*</td>
<td>.114*</td>
<td>.149**</td>
<td></td>
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<td></td>
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<td>8 HBA Demand</td>
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<td>.008</td>
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<td>.127*</td>
<td>.153**</td>
<td>.231**</td>
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<td></td>
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<td>.352**</td>
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<td>.135**</td>
<td>.109*</td>
<td>.141**</td>
<td>.255**</td>
<td>.172**</td>
<td>.150**</td>
<td>.354**</td>
<td>.349**</td>
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<tr>
<td>13 Sales</td>
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<td>-.015</td>
<td>-.015</td>
<td>-.066</td>
<td>.189**</td>
<td>.182**</td>
<td>.131**</td>
<td>.169*</td>
<td>.255**</td>
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** Correlation is significant at the .01 level (2-tailed)
* Correlation is significant at the .05 level (2-tailed)
N = 393
Table 3

Summary of Hypothesized Claims and Support

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<tr>
<th>Hypothesis</th>
<th>Claim</th>
<th>Supported?</th>
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<td>1</td>
<td>Market diversity has a positive effect on assortment width.</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>Market uncertainty has a negative effect on assortment width.</td>
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</tr>
<tr>
<td>3</td>
<td>Market uncertainty has a negative effect on stock level.</td>
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</tr>
<tr>
<td>4</td>
<td>Market uncertainty has a negative effect on margins.</td>
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</tr>
<tr>
<td>5</td>
<td>Market munificence has a positive effect on assortment width.</td>
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</tr>
<tr>
<td>6</td>
<td>Market munificence has a positive effect on stock level.</td>
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</tr>
<tr>
<td>7</td>
<td>Wide assortments have a positive effect on sales.</td>
<td>Yes</td>
</tr>
<tr>
<td>8</td>
<td>Wide assortments have a positive effect on margins.</td>
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<td>9</td>
<td>Wide assortments have a positive effect on stock.</td>
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</tr>
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</table>
Figure 1

Dimensions of the Market Environment, Retailer Merchandising Policies, and Retailer Performance

<table>
<thead>
<tr>
<th>Characteristics of the Market Environment</th>
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</thead>
<tbody>
<tr>
<td>Market Diversity</td>
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Retailer Merchandising Policy → Retailer Performance
Figure 2

Effects of Store Environment on Merchandising and Performance, Controlling for Store Space (t-values in parentheses)

Covariances:

<table>
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<th>Estimate</th>
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<th>C.R.</th>
<th>P</th>
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<td>Market Diversity</td>
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<td>.550</td>
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<td>e-Gr</td>
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<td>3.004</td>
<td>.003</td>
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</tbody>
</table>

Fit Indicators

N = 393

DF = 60

GFI = 0.977

Chi Square 67.20 p value = 0.244

NB: A dashed line indicates a non significant path.