



# Marketing-orientated pricing

## Understanding and applying factors that discriminate between successful high and low price strategies

Marketing-orientated pricing

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### Abstract

**Purpose** – The paper aims to test seven marketing-orientated factors that have the potential to discriminate between the setting of successful high and low prices. The significant factors are then applied by means of a decision support model that can be used by managers to aid their price decision-making.

**Design/methodology/approach** – Following exploratory research, a mail survey was conducted using a questionnaire based on the dual scenario technique.

**Findings** – Six marketing-orientated factors – i.e. ability of customers to pay, brand value, degree of competition, price acting as a barrier to entry, demand compared to supply, and the use of a building market share objective – significantly discriminated between the use of successful high versus low price strategies. Using these variables, a highly statistically significant model was developed based on discriminant analysis.

**Research limitations/implications** – The sample excludes services and is based on responses from managers. Cost-orientated factors were excluded from investigation to provide focus. The study demonstrates the potential for using the dual scenario technique in survey research, provides measures for seven constructs and highlights the dangers of using reverse-polarity items to measure constructs.

**Practical implications** – The decision support model can be used by managers to aid their price decision-making. The significant factors can also be helpful in market segmentation and targeting analysis.

**Originality/value** – The study supports a marketing-orientated theory of price determination based on market, customer and competitor factors. It is the first to provide a systematic and cogent analysis of marketing-orientated variables that have the potential to affect the high versus low pricing decision. By applying these variables in a decision support model, marketers have access to a tool that can aid their marketing decision-making.

**Keywords** Marketing decision-making, Decision support systems, Marketing strategy, Pricing policy

**Paper type** Research paper

### Introduction

It is axiomatic that price occupies a special role within the marketing mix since it alone directly generates revenues: all other marketing mix variables incur costs. Developing and producing brands, creating and executing promotional campaigns and distributing products entail expenditures. No matter how well brands exceed customer expectations, how excellent are promotional campaigns or how effective and



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efficient are distribution systems, if price does not cover costs losses will arise. These simple facts of commercial life mean that pricing research has the potential to be of supreme significance to marketing managers. Indeed Rao (1986) has argued that price setting is the most important of all marketing mix decisions.

Our study is novel in the pricing domain as it is based on a combination of statistical modelling and survey research. It seeks to develop a statistical model based on primary data gathered by means of a survey. In particular, it seeks to identify a set of marketing-orientated factors that discriminate between the use of successful high versus low price strategies, and results in an empirically-based decision support model to aid managerial judgement when setting prices. As such, it is a response to Gijbrecchts (1993) request for more research that provides managerial guidelines and knowledge-based systems for pricing.

The distinction between setting price higher or lower than the competition is a fundamental decision faced by all marketing managers. The notion of high versus low prices was introduced by Dean (1950) who distinguished between skimming prices (relatively high prices that had the potential to be gradually reduced) and penetration prices (relatively low prices). Marketing practice is replete with examples of brands that have successfully competed on the basis of high and low prices. For example, Glaxo used a high price strategy to establish Zantac among medical practitioners as the premier treatment for patients with stomach ulcers. Conversely, Komatsu competed successfully against Caterpillar in the earth-moving equipment market based on a low price. Although Noble and Gruca (1999) established the practical conditions that favour each of ten common pricing strategies derived from the literature, what has not been researched are the conditions under which high versus low pricing strategies can be used successfully. This is the focus of our study.

First, we develop hypotheses relating to seven marketing-orientated factors that have the potential to differentiate between the use of successful high versus low price strategies. Second, we describe our data collection and measurement development procedures. Then we discuss our analysis and results leading to the identification of six generic marketing-orientated factors that differentiate between the use of successful high and low price strategies. Finally, theoretical, managerial and research implications are considered.

### **Conceptual model and hypothesis development**

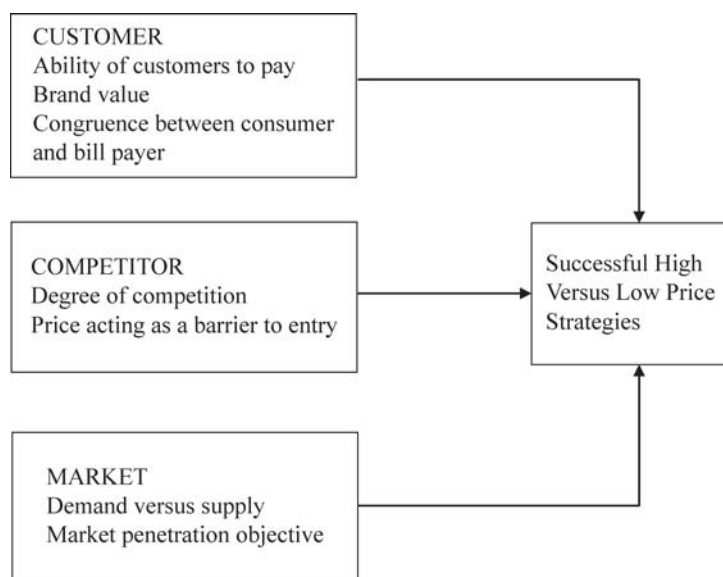
An extensive literature review revealed that there is little focused, cohesive and systematic coverage of the factors that distinguish between the use of successful high versus successful low price strategies. An exception is Jobber (2006) who identified eleven potential factors: brand value, ability of customers to pay, the congruence between the consumer and the bill payer, degree of competition, demand versus supply, market penetration objective, price acting as a barrier to entry, make money later/elsewhere, pressure to buy, predation of rivals, and cost/experience curve effects. Our choice of factors to study and analyse was based on this list. We reduced the number of factors to seven to make our study manageable. The first seven factors were chosen because they received most support in the literature, and our desire to focus on external marketing-orientated factors rather than internal cost-orientated issues meant that cost/experience curve effects were not included. The seven factors may be regarded as marketing-orientated because they involve customer (brand value, ability

of customers to pay, and the congruence between the customer and bill payer), competitor (degree of competition, and price acting as a barrier to entry), and market (demand versus supply, and market penetration objective) considerations. Our conceptual model is presented in Figure 1.

The first customer-orientated variable that has the potential to discriminate between the setting of high and low prices is the customer's ability to pay. Latent demand for a brand can only be activated when a customer has sufficient resources to pay the asking price. Therefore high prices are more likely to be viable where customers have a high ability to pay. In support of this contention, Hoch *et al.* (1995) found that wealthy consumers with larger, more expensive homes were less price sensitive. Further, Nagle and Hogan (2006) provide anecdotal evidence of the importance of ability to pay when setting prices. They cite theatres that give discounts to students because of their low incomes, and car salespeople who ask customers what they do for a living to assess their ability to pay before negotiating the price of a car. Consequently:

- H1.* Ability of customers to pay will discriminate between successful high and low price strategies and a high (low) ability to pay will be associated with a successful high (low) price strategy.

A second customer-orientated element of price determination that could discriminate between the setting of high versus low price is the consumer's estimation of the value of a brand relative to the competition (Forbis and Mehta, 1981; Smith and Nagle, 2005). A brand that provides superior value compared to competitors possesses a differential advantage. This can be based on functional value (e.g. the superior performance of BMW cars) or psychological value (e.g. the superior brand image of Chanel perfume or Gucci shoes). Measuring brand value can provide significant benefits to organizations. For example, a large software database company was planning to sell a new product



**Figure 1.**  
A conceptual model of seven marketing-orientated factors and successful high versus low price strategies

for \$99. After assessing its potential value to customers, the price was successfully set at \$349. Another example is a health care company that had developed an internal tool that saved the firm millions of dollars. The company recognised that the product had potential to be marketed to other health care companies. The initial price was \$500 but after researching the value of the product, the price was raised to \$2,500 and still generated a significant amount of sales with considerably higher profit margins (Hogan and Lucke, 2006).

The marketing literature is also strongly supportive of the link between superior brand value and premium price. For example, Morris and Calantone (1996) state that successful differentiation allows firms to charge higher margins than competitors, reflecting the superior brand value being delivered to customers. In addition, differentiation encourages brand loyalty, frequently making consumers less price sensitive. Munroe (2003) gives the examples of Mercedes-Benz, Tiffany's and Disneyland who have successfully premium priced their products because of their superior brand values. Mizik and Jacobson (2003) distinguish between two key value-related activities firms engage in: value creation and value appropriation. Value creation includes activities firms carry out to create superior brand value for the customer, especially new product innovation. Value appropriation includes activities that companies engage in to capture some of the value created, for example by charging premium prices. However, no empirical work has verified this important link. We, therefore, propose to do so by testing the following hypothesis:

*H2.* Brand value will discriminate between successful high and low price strategies and superior (inferior) brand value will be associated with a successful high (low) price strategy.

Another condition that may affect price setting is the distinction between the consumer of a brand and the bill payer. When the two are different there may be little incentive for the consumer to look for the best deal and price sensitivity will be low (Smith *et al.*, 2006); when the consumer also pays the bill, the motivation to search for a good deal is high and price sensitivity will be higher. Airlines have long recognised this dichotomy when targeting business people and leisure travellers. Business people are less price sensitive because transportation is usually paid for by their companies whereas leisure travellers are more price sensitive because they pay the price of the ticket themselves (Coulter, 2001). By charging lower prices for return journeys that include a Saturday night, airlines effectively discriminate between the two target segments since most business travellers cannot take advantage of the discount without incurring substantial inconvenience. This enables airlines to increase tourist volume while maintaining high business customer prices (Stern, 1989). We, therefore, propose:

*H3.* The congruence between the consumer of the brand/product and the bill payer will discriminate between successful high and low price strategies with low (high) congruence being associated with a successful high (low) price strategy.

The first competitor-orientated variable that could discriminate between successful high and low price strategies is degree of competition. Several authors discuss how degree of competition might affect price setting. Forman and Hunt (2005) propose that the number of substitute products affects consumers' price sensitivity; Oxenfeldt

(1975) argues that price skimming is likely to be more effective when there is limited competition; Shipley and Bourdon (1990) claim that price competition is likely to be fierce when competitors are numerous; Kuyumcu (2007) states that customers make purchase decisions based on relative prices rather than actual prices; and finally Jobber and Shipley (1998) argue that in the extreme case of low competition (a monopoly) premium prices will be charged since customers have no choice of supplier. The limited empirical evidence that exists suggests that degree of competition is an important discriminator. Morris and Joyce (1988) found that the most powerful factors identified by a sample of senior marketing executives of business-to-business firms affecting demand elasticity were competitor activities and the availability of substitutes. Also Hoch *et al.* (1995) found that, among a sample of supermarkets, isolated stores displayed less price sensitivity than stores located close to their competitors. Finally, Kocas (2003) showed that the emergence of price-comparison web sites has led to an increasing number of price-comparison shoppers that have pulled prices down. We, therefore, propose the following hypothesis:

- H4.* Degree of competition will discriminate between successful high and low price strategies and a high (low) degree of competition will be associated with a successful low (high) price strategy.

The next competitor-orientated hypothesis concerns price acting as a barrier to entry. The established theory of entry barriers focuses on the pricing strategies of established firms as a determinant of potential entrants' behaviour (Needham, 1976). The concept of limit pricing has constituted a major theme in the industrial organizational literature. Its central tenet is that an established firm may be able to influence, through its current pricing strategy, other firms' perception of the profitability of entering the firm's markets and that it may, therefore, set its prices low to deter entry (Milgrom and Roberts, 1982). Using theoretical modelling techniques, Bagwell and Ramey (1988), LeBlanc (1992), Linnemer (1998) and Utaka (2007) have shown how limit pricing discourages entry. We would, therefore, expect a variable measuring the degree to which price is being used as a barrier to entry to be associated with the setting of low prices and hence to be a discriminator between the use of successful high and low price strategies. Formally:

- H5.* Price acting as a barrier to entry will discriminate between successful high versus low price strategies with its use being associated with a successful low price strategy.

Demand and supply are market-based factors associated with price setting in classical economic theory: excess demand results in higher prices, while excess supply depresses prices (Begg, 2008; Lipsey and Chrystal, 2007). When considering price determination for brands, it is therefore reasonable to expect that when a decision-maker perceives excess demand a higher price will be set than under conditions of excess supply. Much of the research into demand and supply has focused on yield management, which is the practice of using booking strategies together with information systems data to increase revenues by matching capacity with demand. For example, in the operations research literature Gallego and van Ryzin (1997) used dynamic programming for setting prices in service business environments where the supply-demand relations for one service impact on other services (e.g. networks of air

travel stops). Bitran and Mondschein (1995) extended this work to the hotel industry, Caldentey and Vulcano (2007) to online auctions and Figliozzi *et al.* (2007) to delivery services. In the marketing literature Shipley and Bourdon (1990) found that demand per segment was an influence on pricing decisions for industrial distributors. Hence:

- H6.* Demand compared to supply will discriminate between successful high and low price strategies with excess demand (supply) being associated with a successful high (low) price strategy.

Finally, pricing objectives can also have a bearing on the setting of prices. Although no hypotheses relating to the use of profit objectives are proposed, we expect the use of a building market share objective to be associated with low price strategies. A typical method of building market share is to charge low prices (Monroe, 2003; Paun *et al.*, 1997) and the approach has been shown to be effective (Bowman and Gatignon, 1996; Ghosh *et al.*, 1983). Lancioni and Gattorna (1992) claim that this is the most popular approach to building market share and refer to the method as the “buy strategy” since firms are literally buying share by lowering price (and profit margins). Although the method can provoke competitor reactions leading to downward price spirals, build objectives can make sense leading to lower costs, easier access to distributors and, if a dominant position is achieved, a positive “leadership” effect with consumers.

Numerous studies have established that building market share is an important pricing objective (e.g. Avlonitis and Indounas, 2004; Coe, 1983, 1988; Lancioni, 2005) but no one has related its use to high versus low price strategies. While we recognize that a build market share strategy is not exclusively associated with low prices, we expect the objective to be differentially related to the successful use of low price strategies. Hence:

- H7.* A building market share objective will discriminate between successful high and low price strategies with its use being associated with a successful low price strategy.

## Research method

### *Data collection and sample*

The main data collection stage consisted of a mail survey to 600 sales and marketing directors of UK manufacturing firms employing 100 or more employees. A lower limit of 100 for our target population was necessarily arbitrary as there is no universal definition of a small business with definitions varying according to type of business and country ([www.lib.strath.ac.uk/busweb/guides/smedefine.htm](http://www.lib.strath.ac.uk/busweb/guides/smedefine.htm)). A random sample of such firms was purchased from Kompass Direct. Sales and marketing directors were chosen as they are key influencers in pricing decisions (Abratt and Pitt, 1985; Lancioni, 2005). Small companies were excluded from the sample given the fact that pricing within small firms is treated in a less systematic way than within larger companies (Avlonitis *et al.*, 2005; Carson *et al.*, 1998; Cunningham and Hornby, 1993). In order to improve response rates a follow up letter and questionnaire was sent three weeks after the initial mailing. A total of 142 usable questionnaires were received for a response rate of 23.6 per cent. To assess potential non-response bias, we compared early and late respondents with respect to the type of customer supplied, pricing objectives and

construct measures (Armstrong and Overton, 1977). We detected no significant differences between early and late respondents. The related statistics were type of customer:  $t = 0.10$ ; pricing objectives:  $t = 1.20$ ; for the constructs, competition:  $t = 0.86$ , barrier to entry:  $t = 0.27$ , consumer vs bill payer:  $t = 1.32$ , brand value:  $t = 0.27$ , ability to pay:  $t = 0.08$ , demand vs supply:  $t = 1.30$ , market share objectives:  $t = 1.56$ ; all  $p$ -values  $> 0.10$ . In addition, we compared firm size based on employee numbers between respondents and a group of 100 randomly selected non-participant firms. We found no differences between respondents and non-respondents (chi-square = 0.87,  $p > 0.10$ ). We concluded that non-response bias was not a significant problem in our data.

### *Research instrument*

Questionnaire design was based on the dual scenario technique (Saunders and Jobber, 1994). This involves asking respondents to respond to two self-chosen scenarios. In the first scenario (Section A of the questionnaire) we asked respondents to select one of their company's brands/products that had succeeded in the market (had achieved its objectives) with a high price strategy (the price is or was higher than the average competitor's price). We then asked respondents to indicate the extent to which they agreed or disagree with each of a series of statements relating to the conditions that applied to the brand/product. We employed Likert-type scales anchored by a five point scale ranging from "strongly disagree" (1) to "strongly agree" (5). For the second scenario (Section B of the questionnaire) we asked respondents to do likewise but for a self-chosen brand/product that had succeeded in the market (had achieved its objectives) with a low price strategy (the price is or was lower than the average competitor's price). Because the sampling frame consisted of firms employing 100 or more employees, it is reasonable to assume that recipients of the questionnaire. Had an array of brands/products from which to choose good examples that met the criteria of following successful high and low price strategies. For those that did not, their most likely reaction would be not to respond to either all or part of the questionnaire.

For each scenario, we also asked respondents to indicate the type of market the brand/product was competing in (new/emerging, growth, mature/stable or declining market); the type of ultimate customer (an organization or an individual/household); and the prime pricing objective for the brand/product (short term target profits, long term target profits, market share target, cash generation target or other: please specify). Responses were required for both the "high price" and the "low price" brand/product since pricing objectives differ in the same company across brands (Diamantopoulos and Mathews, 1994). In Section C of the questionnaire, we asked respondents a number of general pricing questions and to indicate approximately how many employees their company had.

A key advantage of the dual scenario technique is that provided both parts of the questionnaire are answered each respondent provides two sets of data (cases). Also sample variability is reduced increasing the power of statistical test. In the event 101 respondents answered both section A and section B, 38 answered only section A and three only section B resulting in 243 cases. The disadvantage of the approach is that questionnaire length is increased resulting in lower response rates (Heberlein and Baumgartner, 1978; Jobber and Saunders, 1989). Our questionnaire was ten pages in length.

*Measure development and assessment*

Since new scales were required we began by combining literature based and fieldwork insights to specify the domain of each of the seven construct dimensions we identified and to develop items that could serve as indicators of each construct. We conducted two group discussions to explore factors affecting high versus low pricing strategies. The group discussions were held with two groups of MBA students all of who possessed at least two years' practical business experience. The first group consisted of 36 participants and the second 22. Since the group members frequently discussed issues together on their programme, the relatively large group sizes were not a hindrance to group dynamics. Focus groups rather than individual interviews were chosen as they benefit from a bandwagon effect in that one person's comments stimulate a chain reaction from other participants resulting in a highly creative process (Malhotra, 2007). It is important that the group discussion takes place where participants feel at ease. Consequently, the discussions were held in a classroom situation since group members were accustomed to this setting and did not experience the inhibitions that can arise when in the presence of strangers. The group discussions were particularly useful for confirming the potential importance of the seven constructs in discriminating between successful high and low pricing strategies and helping with construct definitions. They also revealed that participants often used the terms "brands" and "products" interchangeably. We, therefore, employed the term brands/products in the questionnaire. The scale items themselves were largely derived from the literature, although the group discussions were useful in modifying the wording of the items to avoid jargon. Construct definitions and all items (including selected sources for scale development) appear in Appendix 1 (see Table AI).

Ability of customers to pay, brand value, the congruence between the consumer and bill payer, price as a barrier to entry, demand compared to supply, and building market share objective were measured with three items; degree of competition was measured with four items. As previously discussed, the type of market the brand was competing in, the type of ultimate customer and the prime pricing objective for the brand/product were each measured by single items as they were regarded as concrete variables (Rossiter, 2002). We shall treat these as moderator variables in our analyses.

Preliminary analysis of our multi-item measures employed reliability analysis and exploratory factor analysis (Gerbing and Anderson, 1988). One item "the demand for our brand/product exceeded our capacity to supply" measuring demand compared to supply was deleted because of an unsatisfactory item to total correlation (0.13). The remaining items were then entered into an exploratory factor analysis using varimax rotation. Seven factors resulted, exactly corresponding to the seven constructs and items shown in Appendix 1. We repeated the analysis using oblimin rotation to check the stability of the results. In both analyses, the item loadings exceeded 0.50 for their expected constructs with no cross-loadings confirming stability.

Next, we performed confirmatory factor analysis (CFA) to check for factor structure and loading equivalence across the successful high price strategy and successful low price strategy conditions, and to assess measurement reliability and validity for six of the seven constructs. The demand compared to supply construct was measured with two items following reliability analysis. Difficulties can arise when using CFA for two item measures because of identification problems (Hair *et al.* 2006). Consequently, the two items measuring demand compared to supply were omitted from the CFA. Factor



structure equivalence was examined using multiple group analysis where the factor structure was constrained between groups. The  $\chi^2$  value and corresponding fit statistics show how well the model fits both covariance matrices. Hair *et al.* (2006) recommend that in addition to the chi-square statistic (which is sensitive to sample size) an absolute fit index (the root mean square error of approximation [RMSEA]) and an incremental fit index (the comparative fit index [CFI]) should be used to assess fit. The result was a  $\chi^2$  value of 478.9 with 274 degrees of freedom ( $p < 0.01$ ), CFI = 0.92 and RMSEA = 0.04 indicating good model fit. Factor structure equivalence was, therefore, confirmed. We then examined factor loading equivalence by constraining the factor loadings to be equal across the high price strategy and low price strategy groups. The result was an identical  $\chi^2$  indicating that factor loadings across both groups were equivalent. Therefore the meaning and structure of the six constructs were identical for both the high price strategy and low price strategy conditions.

We then used CFA to assess the reliability and validity for the six factors. To provide a stringent test of convergent and discriminant validity, we included all items used to measure the six factors in a single confirmatory factor model. Although the chi-square was significant ( $\chi^2(137) = 239.44$ ,  $p < 0.001$ ), as might be expected given the sensitivity of the test statistic to sample size (Bagozzi and Yi, 1988), other fit indexes (CFI = 0.92; RMSEA = 0.056) suggest good model fit. Steenkamp and van Trijp (1991) recommend two criteria for testing convergent validity: significant indicator loadings on factors and substantive loadings ( $>0.50$ ). All indicators loaded significantly and all with the exception of one item measuring ability of customers to pay (0.47) and one item measuring brand value (0.34) substantively (see Appendix 1)[1]. We assessed discriminant validity by examining the correlations between all possible pairs of constructs in relation to the square root of the average variance extracted (AVE) for each construct (Fornell and Larcker, 1981). All constructs displayed good discriminant validity since the square root of AVE of each construct was larger than any of the correlations (see Table I[2]). All composite reliabilities exceeded the 0.60 benchmark suggesting they are acceptable (Bagozzi and Yi, 1988).

	Ability of customers to pay	Brand value	Congruence between consumer and bill payer	Degree of competition	Price acting as a barrier to entry	Building market share objective
Ability of customers to pay	0.62					
Brand value	0.02	0.66				
Congruence between consumer and bill payer	0.05	0.06	0.77			
Degree of competition	0.06	0.27	0.15	0.75		
Price acting as a barrier to entry	0.02	0.16	0.16	0.02	0.77	
Building market share objective	0.09	0.05	0.14	0.25	0.44	0.64

**Table I.**  
Construct correlation matrix

These results suggested that the item “Our brand/product gave less value to customers than competitive brands/products” measuring brand value, and the item “Our brand/product was targeted at customers who did not have a high ability to pay” measuring ability of customers to pay should be deleted. This meant that both constructs were measured by two items. We did not believe this to be problematic as constructs measured with as few as one item have proven to have comparable predictive validity as those with three or more indicators (Bergkvist and Rossiter, 2007).

Although it was not possible to perform CFA on the demand compared to supply construct because of a technical reason (underidentification caused by the reduction in the number of items to two after preliminary analysis), we retrained the two items because of very high exploratory factor analysis loadings (0.84 and 0.81). The square of the factor loading represents how much variation in an item is explained by a latent factor (Hair *et al.*, 2006). These loadings therefore mean that the factor is explaining over half (70.6 and 65.6 per cent) of the variation in the items, suggesting high convergent validity. Examination of the cross loadings of these items (mean cross loadings = 0.05 and 0.07) suggested high discriminant validity. Together, the results provide evidence that the measures have sound psychometric properties necessary for hypothesis testing.

### Analysis and results

#### *Logistic regression*

To assess the relationships between the predictor variables and successful high versus low price strategies we considered the use of conditional logistic regression since this is the usual analytical technique for matched pairs of data. However, its use would have meant the elimination of 42 cases since not all respondents completed both sections A and B of the questionnaire. Consequently, logistic regression was employed to test the seven hypotheses[3]. Factor scores of each construct were used as predictor variables. The results are presented in Table II. The model produced a good fit with the data as

Constructs	B coefficient	Wald	Exp (B)
Ability of customers to pay <sup>b</sup>	0.36	4.29*	1.43
Brand value <sup>c</sup>	0.80	17.96***	2.22
Congruence between the consumer and bill payer <sup>d</sup>	-0.12	0.53	0.89
Degree of competition <sup>e</sup>	1.07	26.42***	2.93
Price acting as a barrier to entry <sup>f</sup>	-1.38	44.24***	0.25
Demand compared to supply <sup>g</sup>	-0.46	7.04**	0.63
Building market share objective <sup>h</sup>	-0.47	7.09***	0.62
Constant	0.46	7.18**	1.59
-2 Log likelihood	220.68		
$\chi^2$ (df = 7)	111.13***		
Hosmer and Lemeshaw test	8.96		
Classification percentage	79		

**Notes:** \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ . <sup>a</sup>Low price strategy = 0; high price strategy = 1. A high score indicates: <sup>b</sup>A high ability to pay. <sup>c</sup>A high level of brand value. <sup>d</sup>A low congruence between consumer and bill payer. <sup>e</sup>A low degree of competition. <sup>f</sup>A high extent to which price acts as a barrier to entry. <sup>g</sup>Excess supply over demand. <sup>h</sup>A high extent to which the main objective was to build market share

**Table II.**  
Logistic regression  
results<sup>a</sup>

indicated by a highly significant  $\chi^2$  (111.13,  $p < 0.001$ ) and a non-significant result for the Hosmer and Lemeshaw test. Also, the classificatory accuracy was 79 per cent which is substantially higher than the proportional chance criterion of 50 per cent. The highest bivariate correlation among the predictor variables was 0.44 indicating that multicollinearity was not a problem (Tabachnick and Fidell, 2001). Six of the seven predictor variables were significantly related to the dependent dichotomous variable ( $p < 0.001$  for three variables;  $p < 0.01$  for three variables; and  $p < 0.05$  for one variable)[4].

We found support for *H1* because ability of customers to pay achieved significant ( $p < 0.05$ ) discrimination with a high (low) ability to pay being associated with a successful high (low) price strategy. *H2* was also supported as brand value significantly ( $p < 0.001$ ) discriminated between successful high and low price strategies with superior (inferior) brand value associated with a successful high (low) price strategy. However, *H3* was not supported as the congruence between the consumer of the brand/product and the bill payer did not discriminate.

We found support for *H4* since degree of competition significantly ( $p < 0.001$ ) discriminated between successful high and low price strategies with a high (low) degree of competition being associated with a successful low (high) price strategy. *H5* was supported because price acting as a barrier to entry significantly ( $p < 0.001$ ) discriminated between the two price strategies with its use being associated with a successful low price strategy. The hypothesis *H6* was supported since demand compared to supply significantly ( $p < 0.01$ ) discriminated between successful high and low price strategies with excess demand (supply) being associated with a successful high (low) price strategy. We found support for *H7* since a building market share objective significantly ( $p < 0.01$ ) discriminated with its use being associated with a low price strategy.

#### *Moderator effects*

Of interest to academics and practitioners is the question of whether these results are stable across different customer types, market evolution stages and pricing objectives. Consequently, an analysis of the moderator effects of these three variables was undertaken. Their measurements are shown in Appendix 2 (see Table AII). Since we considered these constructs to be concrete, each was measured using one item with two objects: the high and low price brands/products (Rossiter, 2002). Each variable was investigated to establish if it were a pure moderator (i.e. the main effect was not significant in the presence of a significant interaction term) or a quasi-moderator (i.e. the main effect and the interaction effect were significant) using the approach recommended by Sharma *et al.* (1981). We analysed each predictor variable to assess if its effect on the use of successful high versus low price strategies was dependent on the levels of the moderator variables[5]. For customer type, no moderator effects were present, indicating that for all predictor variables their relationships with the criterion variable did not depend on whether the ultimate customer was an organization or an individual/consumer.

To test for the moderating effects of the stages of market evolution we conducted two sets of analyses. Since responses in the new, emerging and declining markets categories were small ( $n = 21$  and  $24$  respectively) new emerging market responses were combined with those for growth market; also the responses for declining market

were combined with those for mature, stable market. No moderator effects were found indicating that our findings did not depend on whether the brand was competing in a new emerging/growth market or a mature, stable/declining market. The second analysis omitted the new, emerging and declining markets categories. It focused on the growth and mature, stable markets categories only. This second analysis was conducted to check that the combination of categories in the first analysis did not mask any moderating effects due to the growth versus mature, stable categories only. Again no moderator effects were found indicating that our results did not depend on whether the brand was operating in a growth or a mature, stable market.

Finally, we investigated the moderating effects of pricing objectives using two sets of analyses. Of particular interest is whether our results depended on whether the prime pricing objective for the brand/product was profit or market share-orientated. Moderator effects were investigated for six of the seven predictor variables (building market share objective was similar to one category of the moderator variable and was therefore omitted from the analysis). Using the combined responses for short and long-term target profit objectives, and responses for market share target objectives in a moderator analysis showed no significant effects. This indicated that the relationships established in our study did not depend on whether the prime pricing objective for the brand/product was profit or market share-orientated. Our second analysis again employed combined responses: in this case, the combined target profit responses, and the combined responses for market share target, cash generation target and the "other" category since responses for the last two categories were small ( $n = 17$  and  $9$  respectively). Once more, no moderator effects were found. These results demonstrate that our findings are not dependent on customer type, stage of market evolution nor type of prime pricing objective.

#### *Discriminant analysis*

Having identified the variables that discriminate, we moved to the fulfilment of our second objective: to build a decision support model to aid the high/low price decision. Unfortunately, although logistic regression coefficients provide a linear and additive summary of the influence of variables on the logged odds of having a characteristic or experiencing an event, they lack an intuitively meaningful scale of interpretation of change in the dependent variable (Pampel, 2000). This fact severely restricts the use of logistic regression in decision support models that are intended to be used by managers. Consequently, we reanalysed the data using discriminant analysis, which produces easily interpretable and usable coefficients.

The six significant predictor variables were entered into a two-group discriminant analysis using simultaneous estimation. Figure 2 shows the resulting discriminant function. The predictor variables were calculated using the weighted average of the items comprising the constructs, with the weights based on their factor loadings (see Figure 2). Classification of  $z$ -scores required the calculation of the optimal cutting score between the high and low price strategy groups. The cutting score represents the dividing point used to classify responses into one of the two groups based on their discriminant function scores. This is easily calculated using the formula shown in Figure 2. Finally, Figure 2 reveals that the assumption of equal covariance matrices is met and that the discriminant function is highly significant.

a) Discriminant function

$$Z_s = 0.20X_1 + 0.44X_2 + 0.60X_3 - 0.80X_4 - 0.25X_5 - 0.26X_6$$

Where:

$Z_s$  = the discriminant z score  
 $X_1$  = ability to pay,  $X_2$  = brand value,  $X_3$  = degree of competition,  $X_4$  = price acting as a barrier to entry,  $X_5$  = demand compared to supply and  $X_6$  = building market share objective.

b) Predictor variables

Predictor variables are calculated using a weighted average of the items comprising the construct. Weights are based on their factor loadings:

$$\begin{aligned} X_1 &= 0.85a_1 + 0.85a_2 \\ X_2 &= 0.84v + 0.90v_2 \\ X_3 &= 0.79c_1 + 0.83c_2 + 0.82c_3 + 0.81c_4 \\ X_4 &= 0.81b_1 + 0.84b_2 + 0.85b_3 \\ X_5 &= 0.81d_1 + 0.85d_2 \\ X_6 &= 0.70m_1 + 0.77m_2 + 0.79m_3 \end{aligned}$$

Note: the definitions for  $a_1 \dots m_3$  are given in Appendix 1

c) Cutting score calculation

$$Z_C = Z_A + Z_B$$

Where:

$Z_C$  = critical cutting score value.  
 $Z_A$  = centroid for group A.  
 $Z_B$  = centroid for group B.

$$\begin{aligned} Z_C &= \frac{0.64 - 0.86}{2} \\ Z_C &= -0.11 \end{aligned}$$

d) Diagnostics for discriminant function

(i) Equality of covariance matrices

Box's M	F value	d.f.1	d.f.2.	Sig
25.58	1.19	21	180646	0.25

(ii) Overall model fit

Wilks' Lambda	Chi-square	d.f.	Sig.
0.64	105.77	6	0.00

Figure 2. Discriminant analysis results – the PricStrat model

The discriminant function shown in Figure 2 and the equations displayed in Figure 2 provide a decision support model that can be employed by managers wishing to produce quantitative evidence to aid their high versus low price decision making. By providing responses to the 16 items that form the six constructs (taking care with item

$c_1$ , which is reverse scored), the scores can be fed into the equation shown in Figure 2, and hence X1 to X6 entered into the discriminant function to produce a  $z$ -score. The optimal cutting point of  $-0.11$  can then be used to indicate whether a high ( $> -0.11$ ) or a low ( $< -0.11$ ) price is recommended. Table III shows the classification results. Of the cases in the estimation sample 77.0 per cent were correctly classified. Cross validation, using the jackknife (leave-one-out) technique, indicated that 76.1 were correctly estimated. This suggests that the use of the decision support model should produce accurate estimates in about three-quarters of the cases. The equations in Figure 2 we term the PriceStrat model.

**Discussion**

Our study has extended the contribution of survey-based pricing studies from essentially descriptive accounts of pricing practice to the creation of PriceStrat, an empirically-based quantitative decision support model that can aid price decision-making. Using the strengths of logistic regression to identify significant predictors and those of discriminant analysis to create a usable decision support model, the results provide academics and managers with a sound empirically-based understanding of six variables that differentiate between the setting of successful high versus low prices. In this section, we discuss this study’s theoretical, managerial and research implications. Limitations and opportunities for further research are also examined.

*Theoretical implications*

Our study provides new theoretical insights into the determinants of price decision-making. Six of the seven hypothesized factors significantly differentiated between the use of successful high and successful low price strategies. These were ability of customers to pay, brand value, degree of competition, price acting as a barrier to entry, demand compared with supply, and the use of a building market share objective. A seventh construct – congruence between the consumer and the bill payer – did not discriminate. Although these factors have been discussed in the literature as potentially affecting pricing decisions, ours is the first study to investigate systematically and cogently their affect on successful high versus low price strategies.

Two customer-orientated variables were found to discriminate between the setting of successful high versus low price strategies. It is intuitively plausible to link the ability of customers to pay with the setting of successful high and low price strategies.

Estimation sample Actual group	Predicted group		Membership	
	High price	(%)	Low price	(%)
High price	106	76.3	33	23.7
Low price	23	22.1	81	77.9
<i>Cross validated</i>				
High price	105	75.5	34	24.5
Low price	24	23.1	80	76.9

**Table III.**  
Classification results

**Notes:** Of estimation grouped cases 77 per cent correctly classified. Of cross-validated grouped cases 76.1 per cent correctly classified

Empirically, only one study by Hoch *et al.* (1995) has thrown light on its impact on prices: wealthy consumers with larger, more expensive homes were less price sensitive. Our results extend this finding by demonstrating that the ability of customers to pay affects price decision-making. A high (low) ability of customers to pay is associated with the use of successful high (low) price strategies. Brand value is a key marketing concept being related to the creation of competitive advantage. Our study contributes to the theoretical understanding of the importance of creating superior brand value since our survey results show that it is associated with the use of a successful high price strategy. This important link has not been empirically established before.

Both competitor-orientated constructs discriminated between the two prices strategies. Prior evidence in the marketing and managerial literature relating degree of competition to price determination is limited to two studies (Hoch *et al.*, 1995, Morris and Joyce, 1988). Both suggest that price sensitivity is affected by degree of competition. Our results extend these findings by showing how degree of competition impacts managerial pricing behaviour. A high (low) degree of competition is associated with the use of successful low (high) price strategies. Also, our expectation that price acting as a barrier to entry would be associated with a successful low price strategy was supported by our findings.

Despite the voluminous theoretical discussion of the influence of demand and supply on prices, and the popular assertion in the press that prices respond to demand and supply dynamics (e.g. on house or oil prices), very little empirical evidence in support of this contention is present in the extant marketing and managerial literature. However, our findings support the theoretical discussion, as the construct is a significant discriminator with excess demand (supply) being associated with successful high (low) price strategies. Setting low prices has traditionally been associated with building market share (and its associated benefits such as lower costs). Indeed, building market share has been found to be an important pricing objective (e.g. Avlonitis and Indounas, 2004). Our findings show that such an objective is related to a successful low price strategy, therefore confirming received theory.

The overall theoretical implication of our study is that the setting of successful high versus low prices can be explained by six marketing-orientated factors. We believe therefore that our findings signal a move in academic thinking towards a marketing theory of price determination based on market, customer and competitor factors.

#### *Managerial implications*

A major impetus for our study was the lack of empirically-based generic prescriptions and knowledge-based systems to aid managers when setting prices, and the importance of providing such assistance. Although prior research, particularly within the domain of statistical modelling, has provided excellent advice in particular situations (notably for retailers), no empirically-based evidence exists to provide a general guide applicable across a wide range of industry sectors.

Our findings provide the basis for a quantitative decision support model – PriceStrat – based on the six significant factors. When setting prices, managers should assess the marketing-orientated conditions related to the brand, preferably with the aid of marketing research. Using the 16 items that measure the six significant constructs, managers can feed their responses into the equations and model depicted in Table III. As discussed previously, this will lead to a prediction as to whether the brand should

be high or low priced. Exactly how high or low will be a matter of judgement, informed by the brand's  $z$ -score, the theoretical range being from  $-11.96$  to  $12.21$ . Like all decision support aids, the PriceStrat model is designed to supplement rather than supplant managerial judgement. Managers should consider the prescriptions from the model as important input into their thinking about pricing decisions rather than regarding the model as an inflexible deterministic tool. Their confidence in using the output should be enhanced by the knowledge that we found no moderating effects, meaning that the model holds independent of whether the ultimate customer is an individual/household or an organization, whether the brand/product is competing in a growth or mature market, or whether the prime pricing objective is profit or market share-orientated.

The results of our study also have practical implications for market segmentation and targeting. Where market segments are sought that are less price sensitive and hence more willing to accept a high price, our findings suggest that key identifiers are a high ability of customers to pay, high demand versus supply, low competition, a high likelihood that customers place a high value on the brand compared to the competition, and where rivals are not using price as a barrier to competition or employing market share objectives.

#### *Research implications*

First, our research demonstrates the potential of the dual scenario technique in gathering a rich data set for hypothesis testing in survey research. It is particularly applicable in situations where the researcher is seeking an understanding of the conditions that differentiate between two phenomena. For example, it could be used to examine the factors that discriminate between successful build versus hold marketing strategies, successful marketing-orientated versus production-orientated strategies, successful radical innovation versus product replacement strategies, successful media advertising versus sales promotion strategies, and successful direct versus indirect distribution strategies. We recognize that a limitation of the method is that it relies on the perceptions and judgements of respondents. The use of secondary data, perhaps by conducting a longitudinal study of successful brands, could overcome this potential problem.

Second, the development of new scales to measure the seven constructs enables our study to be extended into other sectors, such as services, and marketing applications, for example pricing in international markets. This will enable academics and managers to gain further insights into the conditions that impact price decision-making in specific situations.

Third, our study highlights the dangers of using reverse polarity items to measure constructs. Their use has been advocated as a way of reducing acquiescence bias in questionnaires (e.g. Spector, 1987). Consequently, we applied reverse polarity to five items in our study. This produced low reliability for one item and low construct validity for two items, in all three cases reducing the number of items measuring the construct from three to two. These findings suggest that the disadvantages of using reverse polarity items in scale construction may outweigh the advantages if researchers wish to retain the items developed in the early stages of scale construction[6]. Indeed, some researchers advocate the use of at least three items when measuring constructs. However, recent research by Bergkvist and Rossiter (2007) has



shown that for many constructs in marketing it is not necessary to use a minimum of three items since their results demonstrated that there was no difference in the predictive validity of multiple item (three or more) and single item measures. Since our decision to drop one item from each of the brand value and ability of customers to pay scales was marginal, we ran a second logistic regression using three item measures for both constructs. The results were almost identical with the same six constructs achieving statistical significance and the predictive accuracy of the model being almost equal (79 per cent versus 80 per cent). Since predictive validity is the most important criterion for decision-making purposes (Aaker *et al.*, 2006), our results suggest that two items can be equally as valid as three or more when measuring some marketing constructs.

#### *Limitations and further research*

Despite using the term “generic” to reflect the general nature of our findings, we recognize that our sample excludes services. We therefore cannot generalize our findings to this sector. Although there is no theoretical reason why the six significant predictors should not apply to services, the non-significant construct “congruence between consumer and bill payer” may well have more impact in that sector. Anecdotal evidence suggests this may be an important factor in the pricing of some services, notably air and rail travel.

A second limitation is that responses were provided by managers rather than consumers. Even so, sales and marketing executives are boundary spanning personnel whose career prospects depend on possessing market, customer and competitor information. It is therefore reasonable to assume they possess an adequate degree of marketing knowledge.

Third, our study has not examined all of the circumstances that could explain differences in setting successful high versus low prices. For example, cost-orientated factors were excluded from our study in an effort to focus on the seven marketing-orientated factors that the literature and our exploratory research suggested were prime explanatory candidates.

Further research could examine the extent to which our findings generalize to services. Pricing strategy discriminators in international marketing settings is another potentially worthwhile study. A third potential avenue for investigation is to test the differential effects of cost-orientated constructs such as full and direct costs and the experience curve. Fourth, there is potential to explore the pricing behaviour of small firms to determine if these results extend to this group. Finally, although not central to our initial research objectives, our results support Herche and Engelland’s (1996) call for further methodological research into the impact of reversed-polarity scales on scale dimensionality, reliability and validity. Our experience is that in two of the five occasions they were used no reliability or validity problems occurred, whereas for the remaining three such problems were evident. An understanding of why some reversed-polarity scales are problematic while others are not would be of considerable value to researchers.

#### **Notes**

1. Interestingly, both these items were reverse scored (in an attempt to control for acquiescence bias). Methodological research confirms that reversed-polarity items can have a problematic impact on scale reliability and validity (Herche and Engelland, 1996).

2. The square root of AVEs appear on the diagonal. Values below the diagonal are correlation estimates.
3. In logistic regression analysis problems regarding error term correlations are likely to arise when the focal issue (e.g. attitude to a brand) is the same with multiple observations at different times (e.g. before and after exposure to an advertisement (Tabachnick and Fidell, 2001)). This is not the situation in our study since the focal issue is different (successful high and low price strategies of different brands) at a single point in time. Logistic regression is therefore an appropriate analytical technique to employ in our study. It was preferred to discriminant analysis initially because statistical significance tests can be conducted on predictor variable coefficients aiding interpretation. With discriminant analysis, the researcher is reliant on rules of thumb for interpretation.
4. A logistic regression analysis with brand value and ability of customers to pay measured by three items each resulted in a model with identical predictor variables and a similar classificatory accuracy of 80 per cent.
5. Because of paper length considerations and the fact that no significant interaction effects were revealed, detailed statistical results of moderator analyses are not presented.
6. A disadvantage that we encountered was the reduction in the number of items measuring demand compared to supply from three to two during preliminary reliability analysis. CFA was, therefore, precluded because of underidentification.

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		CR	Loading
Construct 1:	Ability of customers to pay	CR = 64.9	
Definition:	The extent to which customers had an ability to pay for the company's brand/product		
Items:	1. Target customers had a high ability to pay ( $a_1$ )		0.69
	2. Target customers were cash rich ( $a_2$ )		0.69
	3. Our brand/product was targeted at customers who did not have a high ability to pay <sup>ad</sup>		0.47
Selected sources:	Hoch <i>et al.</i> , 1995 (2); Jobber and Shipley, 1998 (1,2,3)		
Construct 2:	Brand value	CR = 65.9	
Definition:	The value provided by the company's brand/product to customers compared with the competition		
Items:	1. Our brand/product gave customers extra value compared with the competition ( $v_1$ )		0.90
	2. Rival brands/products gave less value to customers ( $v_2$ )		0.63
	3. Our brand/product gave less value to customers than competitive brands/products <sup>ad</sup>		0.34
Selected sources:	Hogan and Lucke, 2006 (1,2,3); Jobber and Shipley, 1998 (1,2,3); Mizik and Jacobson, 2003 (1); Morris and Calantone, 1996 (1,2,3); Smith and Nagle, 2005 (2)		
Construct 3:	Congruence between the consumer and the bill payer	CR = 70.6	
Definition:	The extent to which the consumer of the brand/product and the person who paid the bill were the same		
Items:	1. The person who consumed the brand/product was different from the person who paid the bill		0.83
	2. The customer used or consumed the brand/product but someone else paid the bill		0.75
	3. The customer was the person who paid the bill <sup>a</sup>		0.73
Selected sources:	Coulter, 2001 (2,3); Jobber and Shipley, 1998 (1,3); Smith <i>et al.</i> , 2006 (2,3); Stern, 1989 (1,3)		
Construct 4:	Degree of competition	CR <sup>1</sup> = 71.1	
Definition:	The extent to which customers had a choice of brands/products in the market place		
Items:	1. The customer had a wide choice of brands/products from which to choose <sup>a</sup> ( $c_1$ )		0.75
	2. The customer did not have much choice ( $c_2$ )		0.75
	3. There were very few options from which the customer could choose ( $c_3$ )		0.77
	4. There were few (if any) similar brands/products in the marketplace ( $c_4$ )		0.73
Selected sources:	Forman and Hunt, 2005 (2); Forman and Lancioni, 2002 (3); Jobber and Shipley, 1998 (2,3,4); Morris and Joyce, 1988 (3); Shipley and Bourdon, 1990 (1)		

**Table A1.**  
Scale items for construct measures

(continued)

		CR	Loading	Marketing-orientated pricing
Construct 5:	Price as a barrier to entry	CR = 76.4		
Definition:	The extent to which the price of the company's brand/product acted as a barrier to entry to potential competitors			
Items:	1. We hoped price would create a barrier to entry against possible rivals (b <sub>1</sub> )		0.83	<b>1669</b>
	2. The price meant that the market was less attractive to potential entrants (b <sub>2</sub> )		0.76	
	3. The price would deter potential competitors from entering the market (b <sub>3</sub> )		0.73	
Selected sources:	Forman and Hunt, 2005 (1,2,3); Milgrom and Roberts, 1982 (2); Scheffman and Spiller, 1992 (1,2,3)			
Construct 6:	Demand compared to supply <sup>b</sup>	$r = 0.42$ ( $p < 0.01$ )		
Definition:	A comparison of demand for and supply of the company's brand/product			
Items:	1. Supply of our brand/product exceeded demand (d <sub>1</sub> )		0.81	
	2. Our capacity to supply the brand/product was greater than demand (d <sub>2</sub> )		0.85	
	3. The demand for our brand/product exceeded our capacity to supply <sup>ac</sup>		–	
Selected sources:	Begg, 2008 (1,2,3); Lipsey and Chrystal, 2007 (1,2,3); Shipley and Bourdon, 1990 (3)			
Construct 7:	Building market share objective	CR = 62.4		
Definition:	The extent to which the main objective was to build market share			
Items:	1. Our main objective was to increase market share (m <sub>1</sub> )		0.67	
	2. Our main target was to gain market penetration (m <sub>2</sub> )		0.70	
	3. We wished to dominate the market (m <sub>3</sub> )		0.53	
Selected sources:	Avlonitis and Indounas, 2004 (1,2,3); Lancioni, 2005 (1,2); Lancioni and Gattorna, 1992 (1); Monroe, 2003 (1,2); Paun <i>et al.</i> , 1997 (1,2)			

**Notes:** <sup>1</sup>CR refers to composite reliability. <sup>a</sup>These items were reverse scored (reversed-polarity items). <sup>b</sup>This construct was measured with two items after reliability analysis. Hence correlation (rather than Cronbach alpha) was the appropriate technique to assess reliability. <sup>c</sup>This item was dropped following preliminary reliability analysis. <sup>d</sup>These items were dropped following confirmatory factor analysis. The items used in the questionnaire were derived from the literature. The numbers in parenthesis after each source relate to items where the reference was found to be particularly helpful in item generation. The papers use terms or expressions that are the same or similar to the items included in the questionnaire. In some cases the sense of the statement in the paper has been taken but reworded to fit the needs of a wider cross section of respondents, and to avoid jargon or ambiguity. Also, the meaning of some items has been reversed to provide reverse polarity items

Table AI.

**Table AII.**  
Measurement of  
moderator variables

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<i>Customer type</i> The ultimate customer was:	An organization An individual/household
<i>Stage of market evolution</i> The brand/product was competing in:	A new emerging market A growth market A mature, stable market A declining market
<i>Prime pricing objective</i> Which of the following best reflects your prime pricing objective for this brand/product:	Short-term target profits Long-term target profits Market share target Cash generation target Other: please specify

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#### About the authors

David Jobber is Professor of Marketing at the School of Management, University of Bradford. He has published over 140 research papers and his most recent research has been published in *Journal of Management*, *European Journal of Marketing*, *Journal of the Operational Research Society*, *Journal of Business Research* and *Strategic Management Journal*. Professor Jobber has received the Academy of Marketing life award for exceptional and distinguished services to marketing, and has acted as special advisor to the business and management panel for the Research Assessment Exercise in the UK. David Jobber is the corresponding author and can be contacted at: [d.jobber@bradford.ac.uk](mailto:d.jobber@bradford.ac.uk)

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