DIMENSIONS AND DETERMINANTS OF RETALIATORY BEHAVIOUR TO NEW PRODUCT ENTRY

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This paper focuses on the defence strategies that firms pursue when threatened by rival new products in their markets. We investigate retaliation as a multi-dimensional construct in order to gain a more comprehensive understanding of the nature of defence mechanisms. Results emphasise the importance of the rival product’s innovativeness in generating a retaliation response, particularly tit-for-tat. Market growth encourages rapid retaliation whereas market concentration is associated with less strong reactions. The incumbent’s size leads to less strong and slower reactions. Price sensitivity is associated with faster reactions. This study also discusses issues of construct validity and reliability by applying contemporary measurement theory.
DIMENSIONS AND DETERMINANTS OF RETALIATORY BEHAVIOUR TO NEW PRODUCT ENTRY

In recent years the marketing discipline has shown increasing interest in market defence strategies (e.g., Yip 1982a, Hauser and Shugan 1983, Robinson 1988, Bowman and Gatignon 1995, Gatignon, Robertson and Fein 1997), one of the classic areas of research in industrial organisation and economics. Market defence strategies refer to the attempts of established competitors to deter or slow the entry of an actual or potential new competitor in their market. A range of defence mechanisms has been discussed in the literature, including aggressive pricing, cost minimisation, diversification and the use of advertising as a barrier to entry.

The principal objective of our research is to provide insight into the phenomenon of competitive retaliation by identifying the factors that influence defence decisions. The perspective is that of a firm which is threatened by a new rival product rather than by a new competitor. In view of the extant body of literature related to competitive reaction, an important contribution of this paper is to provide a structured inventory of previous research in this area. We then take this as a springboard for a more comprehensive reflection on market defence by analysing this construct on multiple analytical dimensions. Rival responses include an instrumental dimension (marketing mix elements used for reaction), a weight dimension (intensity and breadth of reaction) and a time dimension (reaction speed). These dimensions have been studied previously in isolation and we try to gain a more comprehensive understanding of retaliatory strategy by studying them simultaneously.

The instrumental dimension encompasses the study of so-called tit-for-tat strategies, a competitive response mechanism which has been discussed in political science (e.g., Axelrod
1984), economics (e.g., Brams and Kolgour 1987, Kahn and Murnighan 1993), but less so in marketing. The relevant question is whether a product mix-related threat (i.e., a new product) triggers a response on the same dimension. Here we broaden previous work on defence by including the nature of the threat, i.e., the innovativeness of the new product introduction, in the conceptual framework. We also extend previous work by applying contemporary approaches to measure validation based on confirmatory factor analysis.

In addition to extending the limited empirical base within the marketing literature on defence strategies, our research has important managerial relevance. A potential value is to make established firms more aware of the crucial role of competitive interplay. This is important because strong competitors may experience reversals of their fortunes due to a failure to anticipate and counter-act new competitive forces (e.g., Abernathy and Clark 1985). Recent research by Clark and Montgomery (1996), for example, suggests that accurately perceiving competitive reactions has a positive impact on a firm's performance. Our investigation is also important from the point of view of the rival competitor in helping to anticipate how established firms will react to a new product. The ability to predict how an established competitor will respond to a product entry is a crucial factor in competitive analysis and an important issue in developing a new product launch strategy.

**Conceptual Understanding and Literature Review**

In general, competitive reactions are defined as a set of decisions by a firm in response to an observed competitive action (e.g., Schumpeter 1950). In our investigation we are focusing on new product introductions, which are classified as threatening moves that have a potentially negative impact on short-term or long-term profitability of other players in the industry. In such cases, counter-moves have to be expected by the initiating firm, i.e., they tend to trigger
competitive retaliation. Price decreases, for example, are threatening moves. They need to be matched by the competition in order to minimise their impact on profitability. Competitive entry and new product introductions, which are the focus of our study, are also threatening moves. Porter (1980) distinguishes threatening moves from co-operative or non-threatening moves which do not trigger competitive responses'.

It often has been argued that the way a firm responds to competitive actions can add substantially to its ability to sustain or enhance competitive advantage and may determine its ultimate organisational performance (Porter 1980). The effectiveness of a competitive move depends largely on whether that action goes unchallenged. In cases where the established competitor reacts strongly to the new product, the effects of the new product introduction may be diluted and the success of the launch can be jeopardised (Hanssens 1980).

Competitive reaction to new product entry is a multi-dimensional concept and has been defined in terms of the following key characteristics (Gatignon and Bansal 1990, Robertson and Gatignon 1991, Smith, Grimm, Gannon and Chen 1991, Chen and MacMillan 1992):

a) the direction of reaction,  
b) the instrument of reaction,  
c) the breadth of reaction,  
d) the intensity of reaction,  
e) the speed of reaction and  
f) the domain of reaction.

The **direction of reaction** was first defined by Bain (1956), who conducted pioneering work on barriers to entry. His notion was that in situations where an incumbent competitor is faced with a potential entrant, the incumbent can ignore the entry, engage in entry deterrence or accommodate the entrant. In the case where the entry of a new competitor has materialised, Scherer and Ross (1992) propose either to ignore the entry, to retaliate, or to accommodate. A fourth option proposed by Gatignon (1990) is withdrawal from the market.
A retaliatory move is associated with a counter-attack to a competitive move. Any action by the threatened firm that aggravates the competitive situation for the rival product would fall into this category. The literature usually treats retaliation synonymous with competitive reaction. A retaliatory move may occur via the same marketing mix variable (e.g., a new product is counter-attacked with a new product, i.e., tit-for-tat) or the counter-attack may involve multiple marketing instruments (e.g., a competitor responds to a new product by cutting prices and special promotions) (Lambin, Naert and Bultez 1975). The marketing mix parameter utilised in the defence specifies the reaction instrument (price retaliation, product mix retaliation etc.) and the number of marketing mix instruments determines the breadth of the reaction (simple competitive reaction vs. multiple competitive reaction).²

The reaction intensity or magnitude, concerns the extent of the response and refers to the magnitude changes in the reaction parameters. Reaction speed measures the time lag between competitive threat and response, a dimension of considerable managerial relevance but rarely studied in the marketing domain until recently (Bowman and Gatignon 1995, Gatignon, Robertson and Fein 1997). The domain of reaction refere to the market in which the defender counter-attacks. The defence can either occur in the same market as attacked or in a different market depending on the vulnerability of the attacker.

In our study we are especially interested in the intensity of specific reaction instruments and the breadth and the speed of retaliation strategies as depicted in Figure 1. The graphic amplifies what we explained above and shows that in case of a competitive entry (by a new firm or a new product), the threatened firm has to decide whether to retaliate or not.

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See Figure 1
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Pre-Entry vs. Post-Entry Defense

There is a dichotomy in the market defence literature in the sense that the extant stream of literature can be divided into pre-entry and post-entry defence issues. The former mainly stems from economics and industrial organisation and ranges from work on reaction functions to the theory of entry-deterrence. Reaction functions (e.g., Friedman 1977) have been used by economists to describe how firms in markets with oligopolistic structures make their decisions (e.g., Cournot 1838, Bertrand 1883, Bowley 1924, Stackelberg 1934). Reaction behaviour can be summarised in reaction matrices, a work in marketing which was pioneered by Lambin, Naert and Bultez (1975), who generalised the Dorfman-Steiner theorem (Dorfman and Steiner 1954). Their model enables the researcher to distinguish between simple competitive reactions and multiple competitive reactions as they were described above.

The literature stream on entry-deterrence is based on Bain's seminal work on entry barriers (1956) and is concerned with strategies that aim for entry prevention, i.e., competition against potential rivals. Bain explicitly defined his theory of incumbents' behaviour vis-à-vis potential competition. He characterised entrants as a) newly established firms and b) as production capacities built and introduced by new firms (p.5). This narrow view was subsequently broadened and most of its implications hold true for potential competition from any source, which includes mergers and acquisitions, or expansion and growth of existing firms. For this reason pre-entry research has contributed to a large extent to the development of the post-entry defence logic. This area of research tries to understand how markets and competitive conduct change once entry (of a new competitor or a new product) has materialised, i.e., deals with issues of defence against actual competition.

Analytical Contributions on Post-Entry Defense

Hauser and Shugan's Defender model (1983) is an important contribution in the area of market defence strategies as it provides an analysis of how an established firm should adjust its
marketing mix (changing price, advertising expenditures, distribution expenditures or brand position) in response to competitive entry. This normative analytical model predicts that, under certain conditions, a negative reaction (i.e., cutting back resources on advertising and distribution or even increasing price) represents the profit maximising strategy. This result follows from the assumption that all products in the target market remain passive, except the defender's and the challenger's products and hence, the profit of the established product will decrease when entry cannot be prevented. The Defender model has been criticized because of this assumption. Hauser (1988) extended the model to a full equilibrium analysis.

The Defender model has been tested in several markets, e.g., in groceries, computer software, over-the-counter products (Hauser and Gaskin 1984) and other product categories principally confirming the theoretical results. By the same token, Kumar and Sudharshan (1988) investigate the development of optimal defence strategies for existing products when attacked by a new product by extending the Defender model to a full equilibrium analysis. The authors arrive at similar results to those originally suggested by Hauser and Shugan. Gruca, Kumar and Sudharshan (1992) assume that the effects of marketing mix variables are not independent (as assumed in both studies) and use coupled response functions to model the optimal response to entry. The normative guidelines they derive differ depending on the relative market share of the incumbents. They suggest that the optimal response for non-dominant brands is to reduce price, advertising and distribution spending. For dominant brands, however, the response is to reduce price and increase marketing spending. Similar models have been developed by Lane (1980), Hauser and Wernerfelt (1988), Carpenter (1989) and by Choi, DeSarbo and Harker (1990).

**Empirical Contributions on Post-Entry Defense**

Research in the area of competitive defence is inherently difficult due to the lack of reliable competitive data. Its availability is largely constrained because companies tend to maintain secrecy about competitive issues. In general, there is a relative paucity of empirical research in this field, although some researchers have begun to break ground. To be able to understand
fully the state of knowledge in this field we shall review the empirical contributions on market
defence. Table 1 provides a structured overview of work in this field, distinguishing work on
competitive reactions to potential entry (entry-deterrence), to new entry (from new
competitors) and to new product entry (intra-industry rivalry).

The first three studies by Smiley (1988), Bunch and Smiley (1992) and Singh, Utton and
Waterson (1991a&b) constitute rare cases of empirical work on entry-deterrence. In general,
the demarcation line between pre-entry and post-entry incumbent behaviour is rather difficult
and is often important only for theoretical considerations. A posterior, the investigator may
not know when a market entry attempt was detected by the incumbent or whether a pre-entry
reaction may be interpreted as a post-entry reaction simply because of the time it takes to
implement a strategy (e.g., in the case where incumbents react with new product positioning
or modification of distribution strategies). All other studies explore competitive reactions to an
actual new competitor or competitive product and, therefore, refer to the case where entry has
actually materialised. We may want to conclude that barriers to entry in these industries were
not substantial enough to prevent entry of new competition or new products or that the
competition was successful in finding gateways into the industry to get around these barriers
(Yip 1982b).

Some general observations can be drawn from the empirical work as represented in Table 1:
First, there is evidence that companies do indeed defend their markets. An important
determinant of the defence behaviour is whether an incumbent defends against a new
competitor or a familiar rival. In cases where a start-up company, or de novo entry in
economic parlance, threatens an established competitor, it is likely to defend less strongly than
against a new product entry from an established competitor. This has been explained based on
the uncertainty that surrounds new businesses. This finding sheds a new perspective on the
industrial organisation literature which has made most of the theoretical contributions in this field. If companies are less inclined to defend against newly established businesses entering their markets, how likely is it that firms defend against potential competition? Gilbert (1989b) found the evidence for strategic entry-deterrence to be "more anecdotal than actual" (p. 125) and Smiley (1988), Bunch and Smiley (1992) and Singh, Utton and Waterson (1991a&b) provide empirical support that in most cases incumbents do not attempt to deter entry.

Secondly, there is scattered evidence of how the nature of product competition plays a role in the incumbent's decision of how to defend. Robinson (1988) included the innovativeness of the new product introduced by the new entrant as an explanatory variable. He found that the more innovative a product, the stronger the incumbent's reaction in the second year after introduction. The inclusion of the entrant's innovativeness in Robinson's analysis was based on the contention that innovative strategies are potentially threatening and can, therefore, motivate strong incumbent reactions. Surprisingly, Cubbin and Domberger (1988) found that innovative entry appeared to have no effect on the likelihood of advertising response to product entry. Perhaps the new product's innovativeness has more impact on initiating tit-for-tat responses rather than inducing responses on other submixes (such as on the advertising mix).

Research by Heil and Walters (1993) addresses a related problem: they find that the hostility of a new product signal has a significant positive effect on the strength of the competitive reaction. Perhaps the more innovative a new product, the more hostile it is perceived by the competitor and, therefore, the more pronounced the reactions. Bowman and Gatignon (1995) claim that "innovative entries, in particular, represent a major threat and, thus, are expected to incite strong reactions" (p. 51) but their use of the PIMS database did not offer such a variable for testing this interesting contention. Although Robinson (1988) found this positive relationship, there is evidence in the literature on innovation that a different behaviour is
prevalent when new product entries are innovative or radical, some of which will be discussed in the next section.

Thirdly, there are structural conditions in industries and firm-specific characteristics which potentially encourage incumbent firms to defend their markets against competition. These specific variables, such as market growth rates, industry concentration, and price-sensitivity can help to explain variations in incumbents' reactions. It seems that some factors are more important in explaining certain response pattern than others and that consistency in findings across heterogeneous business environments may allow researchers to move towards conceptual model development on market defence. Market attractiveness/dependency and strategic market importance, for example, seem to emerge as factors that potentially can trigger strong and fast responses, whereas large company size and, relatedly, organisational inertia seem to have the opposite effect. Our contention is that we will benefit from bringing together this set of specific variables in order to assess their influence on multiple analytical dimensions of competitive defence to gain a more holistic view of this important competitive phenomenon.

It also has to be noted that although a broader conceptual logic on defence mechanisms is emerging, far less attention has been paid to methodological issues in marketing strategy research. We find that a large part of the empirical contribution in this field relies on PIMS data, or on data from single-industry studies. We try to add to the emerging primary data base to view the problem through a different lens. Also, there is a lack of work that emphasises issues of construct validity and reliability, a fact that is surprising when in the consumer behaviour domain such problems have been addressed with methodological rigor. We intend to use a measurement model of the second generation (LISREL) to ensure superior measurement quality by providing more stringent tests for scale reliability and validity.
Framework of the Study

Objectives
Our research aims to build on the extant literature on market defence and to add to previous studies in several ways. First, we treat market defence strategy as a multi-dimensional phenomenon recognising that most research until now has examined a limited number of dimensions. We believe that this integrative view will provide more insight into the retaliatory behaviour of firms. Secondly, we explicitly include the innovativeness of the new product in our investigation and, therefore, broaden the conceptual framework in which defence strategies against actual competition are viewed. Thirdly, we intend to apply contemporary measurement theory to the empirical data. The intention is to subject our measures to more stringent tests of reliability and validity to ensure that the constructs under investigation are a good representation of what we try to measure.

Conceptual Model
From previous research on defence we identify three categories of factors that can potentially explain defence mechanisms: market characteristics, incumbent characteristics, and entrant strategy characteristics.

Based on the literature we now derive sets of propositions that explain retaliatory behaviour as a function of these factors. As outlined earlier we will focus on explaining multiple dimensions of retaliatory behaviour. We are especially interested in investigating the instrumental dimension (the marketing mix instruments used in the retaliation strategy), the intensity,
breadth and reaction speed. Our intention is to find patterns of retaliatory behaviour that can be generalised across industries, i.e., across different industry environments, such as consumer goods and industrial goods manufacturing. For this purpose we had to restrict the investigation on the instrumental dimension on submix-types that have significance in both industry sectors. In order to identify tit-for-tat strategies, we chose the product mix and we chose the pricing mix as a non-product related marketing mix that has relevance in consumer goods and industrial goods industries. For the analysis we have combined the instrumental with the intensity dimension so that we arrive at explaining the intensity of product mix related responses and price mix related responses.

In the following, we first establish the propositions with regard to retaliatory behaviour on the product and price instruments of the marketing mix. Product mix reactions comprise product improvements, product repositionings and new product introductions and price retaliation comprises price decreases and increases as well as trade discounts. Next, we focus on reaction speed and on breadth of reaction and develop these propositions accordingly. For the breadth dimension we have also taken into account reactions on the other submixes such as promotion reactions (changes in advertising and promotion budget), and reactions on the distribution mix (expansion of salesforce or distribution).

**Propositions: Retaliation on Product and Price Submixes**

*Market Growth* - Market growth rates and, relatedly, the stage of the product life cycle, can affect competitive response. Porter (1980) states that slowing growth rates make competition more aggressive. This aggressive behaviour may be especially prevalent if the firm is faced with high fixed costs and/or excess capacity. Robinson (1988), however, found reactions to be stronger in high growth markets than in low growth markets. One reason for this observation could be that market growth signals the potential for future profitability and, therefore, increases the attractiveness of these markets. Competitors will be likely to protect their future profitability by counter-attacking a new product with a reaction on the product mix to extend their existing competitive advantage. This argument is supported by Day (1986), who contents...
that in high-growth markets, companies have certain expectations regarding sales development and if deviations from these trajectories occur, the incumbent is likely to take counter-measures.

Also, high growth markets are usually associated with the early stage of the life cycle. Technological maturity of products is low as opposed to mature markets where products tend to become more interchangeable. Changes in the composition of the product mix, therefore, are more frequent in high growth environments. We therefore expect a stronger retaliation on the product mix in growth markets in order to counter-attack a rival new product entry and to hold market position.

*Industry Concentration* - The number of competitors affects the level of expected cooperation, and hence, the level of competitive rivalry. Research in game theory, for example, suggests that rivalry tends to intensify as the number of competitors increases. By the same token, Burke and Moore (1990) show that co-operative behaviour is less likely as more subjects participate in an interaction. These arguments suggest that retaliatory moves, in general, are more likely to occur in less concentrated markets. In addition, more concentrated markets exhibit high visibility of competitive movements and firms are likely to monitor the competition closely (Bowman & Gatignon 1995) making co-operative or non-threatening conduct more prevalent and profitable. Also, less concentrated markets are usually populated by a large number of smaller companies that may exhibit higher flexibility with regard to new product development. Stronger reactions on the product mix are, therefore, more likely to occur in markets with low rates of concentration.

*Price-Sensitivity* - There are situations where the incumbent's market is characterised by customers that are relatively sensitive to price changes. This observable price-sensitivity of a market segment is an indicator of buyers' switching costs, which affects competitive rivalry because it defines the ease with which buyers can change to a substitute. In situations where switching costs are low, buyers will exhibit a higher price-sensitivity to discrepancies in
competitors’ prices. This effect will occur in those cases where the rival new product is introduced at a lower price than the threatened competitor’s product. In these cases the new product entry potentially poses a greater threat to the incumbent competitor and a strong product retaliation is more likely to occur to prevent customers from being lured-away to the new product.

\textit{Incumbent Size} - The literature provides an interesting discussion on the link between the size of a competitor and its ability to sustain competitiveness through continued innovations (e.g., Foster 1986). Often the emergence of new products or technologies challenges the dominance of larger companies and overcomes existing entry barriers through innovations that go unmatched by the rival (Yip 1982b, Foster 1986). The argument is that larger competitors are often inflexible and their unwillingness to progressively innovate is proportional to their potential revenue loss due to self-cannibalisation (Arrow 1962, Reinganum 1983, Hannan and Freeman 1984, Tushman and Anderson 1986). We therefore expect a larger competitor that is threatened by a new product to react less strongly on the product mix.

Research seems to suggest that incumbents feel less need to decrease price in response to competitive product entry. This is somewhat contradictory with regard to the limit-pricing literature (e.g., Sylos-Labini 1962, Milgrom and Roberts 1982). Perhaps larger incumbents benefit from reputation effects or hold the price-umbrella for the industry and, therefore, are reluctant to use a price-based retaliation strategy. Incumbent size is, therefore, negatively associated with price retaliation. We posit that larger incumbents will react less strongly on price when faced with a new product from a rival competitor.

\textit{Exit Costs} - Exit barriers are the opposite case of entry barriers. Exit costs are the financial penalties that have to be borne by an incumbent when abandoning the market (Scherer and
Ross 1992). Exit costs constrain the movement of a competitor from one industry segment into another. In the case where established firms face high exit costs, these firms will be more inclined to defend their current position, even if they are earning subnormal returns on investment (Porter 1980). Dixit (1980) showed that exit barriers provide the incumbent with the incentive to take a more competitive posture toward potential rivals. In fact, exit costs were the only economic variable in Heil and Walters' investigation (1993) on strength of response that proved to be a significant economic moderator. Exit costs, therefore, will be a factor for explaining a firm's reaction, since the consequences of a new product introduction pose a threat to its profitability and will have a potential impact on the livelihood of the threatened competitor. Product related activities have typically stronger long-term orientation than activities on other submixes such as advertising or pricing. It is assumed that in the presence of high exit costs firms will have a long-term orientation with respect to the relevant market and will be more inclined to use product mix instruments. We expect, therefore, that the higher the exit costs, the stronger the incumbent will react on the product mix.

The argument with regard to price retaliation is relatively straightforward. If the rival uses price as a competitive parameter by introducing the new product at a lower price the threatened firm will see the need to do likewise (tit-for-tat, Axelrod 1984). In markets with high price-sensitivity, therefore, we expect price retaliation to be stronger than under less price-sensitive demand conditions.

**Threat** - Empirical research in marketing using the signalling paradigm has led to two important conclusions: hostile actions and actions which signal significant consequences for the threatened firm, trigger strong competitive reactions (Heil and Walters 1993) and aggressive reactions lead to more aggressive responses (Robertson, Rymon and Eliashberg 1995). These characteristics - hostility, consequence and aggressiveness - are captured in the construct of threat. The more hostile and aggressive and the more consequential an action, the more threatening it potentially becomes for the attacked firm. In these cases we expect a
stronger, more aggressive retaliation to occur than in situations where the competitive attack is less hostile, aggressive or consequential. The research by Axelrod (1984) suggests that this retaliation will be more likely to occur on the product mix. This is in line with the tit-for-tat logic that an aggressive action, such as a new product introduction, will lead to strong retaliation on the same dimension.

**Innovativeness** - Empirical research in the area of market defence seems to suggest that the new product's innovativeness influences the incumbent's competitive reaction. Interestingly, there is scattered empirical evidence as to the degree that such product competition plays in the defender's decision. Robinson (1988), for example, found that the more innovative a product, the stronger the incumbent's reaction to a new competitor. The argument that innovative new products are particularly threatening and thus incite stronger retaliation (Bowman and Gatignon 1995) is in line with this finding by Robinson (1988). Research by Gilbert and Newbery (1982) shows that incumbents will rationally pre-empt entrant investment in innovation in order to continue to profit from the extension of existing market power when a radically new product creates a new market or market segment. The expectation is that competitors will react in a similar manner; for example, a new rival product triggers a reaction on the product mix. From these arguments we may infer that the more innovative a new product entry, the more strongly the challenged competitor will react on the product mix in order to maintain long-term competitiveness.

If the rival new product is sufficiently innovative, the threatened firm may seek to enhance the attractiveness of its current product. This is likely to occur by a reaction on the product mix but may also be accompanied by a price retaliation on the existing product to prevent short-term erosion of sales in the shortfall of the new product. This strategy would be feasible as it is less resource intensive - an important requirement when, at the same time, a product mix response is prepared. A strong price retaliation, therefore, is more likely as the innovativeness of the rival's product increases.
We now summarise our propositions with regard to the strength of retaliation strategies on the product and price submix:

**H1:** Retaliation on the product mix will be stronger:
   a) the higher the market growth rate,
   b) the lower the industry concentration,
   c) the higher the price-sensitivity,
   d) the smaller the incumbent,
   e) the higher the exit costs for the incumbent,
   f) the higher the perceived threat of the new product introduction and
   g) the more innovative the rival's new product.

**H2:** Retaliation on the price mix will be stronger:
   a) the higher the price-sensitivity
   b) the smaller the incumbent and
   c) the more innovative the new product.

**Propositions: Speed of Reaction**

Speed - or more generally time-based philosophies - have gained significant importance in business practice and management theory. The classical areas where speed is discussed as an important factor of success are in the new product development process (e.g., Millson, Raj and Wilemon 1992, Robertson 1993) and in market pioneering (Robinson and Fornell 1985, Urban *et al.* 1986, Lambkin 1988, Robinson 1988b, Moore, Boulding and Goodstein 1991). Response time to competitive threats, however, has been (with a few exceptions) a somewhat neglected subject especially in marketing. In strategy exists a strand of literature on the airline industry which examines the value of speed in responding to various competitive moves (price moves, service improvements, mergers and acquisitions etc.) (Smith, Grimm, Chen and Gannon 1989, Smith, Grimm, Gannon and Chen 1991, Chen and MacMillan 1992). The
results are not entirely conclusive and questions have to be raised whether findings hold true across industries and with regard to new product entry.

**Market Growth** - Empirical research suggests that speedier responses are more prevalent if the market is viewed by firms as highly attractive. Such attractiveness is usually associated with high-growth markets (Day 1986). As explained earlier, firms form growth expectations and if such trajectories are jeopardised by a product entry, reactions are likely to occur to minimise this risk. Porter (1980) argues similarly: if a rival new product is perceived as attacking a business of major strategic importance (such as markets with high growth rates), it is likely to provoke rapid responses. We follow this line of reasoning and posit that firms will retaliate more quickly when operating in growing markets.

**Concentration** - The lower the concentration in an industry, the more competitive the conduct among rivals. In such markets, a new product poses a threat to industry profitability and competitors are more likely to react faster and more aggressively. On the other hand, when facing only a few competitors, firms are constantly monitoring competitive moves, which should enable them to anticipate and, therefore, react quickly. Also, when the concentration is very high, incumbents expect new products to have an impact on their market share gradually as new entrants will inevitably invade their markets (Caves, Fortunato and Ghemawat 1984). Competitors, therefore, are forced to defend in a speedy manner to effectively defend their market position against rival activities. Consequently, we expect a positive relationship between concentration and speed of response.

**Price-Sensitivity** - If the competitor's new product has been introduced at a lower price and the market exhibits price-sensitivity, the threatened competitor has a strong incentive to react fast in order to prevent its customer base from switching to the new product. Hence, we expect the response time to be shorter.
Incumbent's size - In his seminal work on innovation, Schumpeter (1950) argues that size and monopoly power are positively related to inventive activity. He supported his theory with the rationale that firms need protection from competition before they bear the risks and costs of invention and innovation. The empirical base in this field does not provide any consistent evidence and the Schumpeterian thesis has been disputed (e.g., Kamien and Schwartz 1975). Opponents argue that larger incumbents fail to innovate because of inertia and inflexibility often to protect their installed base and to avoid self-cannibalisation (e.g., Reinganum 1983, Ghemawat 1991). We take this latter position and posit that the larger the threatened competitor, the more inert and inflexible it will be in its response. Hence we expect that response time will be longer.

Threat - We expect hostile actions or those with significant consequences for the threatened firm to trigger strong counter-attacks (Heil and Walters 1993) and that aggressive actions lead to more aggressive responses (Robertson, Rymon and Eliashberg 1995). These characteristics - hostility, consequences and aggressiveness - are captured in the notion of threat. The more threatening the competitive action, the more important it is for the attacked firm to prepare a response swiftly in order to limit potentially harming effects on its profitability and competitive standing. Thus, the greater the perceived threat, the speedier the response.

Innovativeness - Although speed seems to be a crucial element of successful marketing strategies (Gatignon, Robertson and Fein 1997), we have to acknowledge factors that may lead to a slower response than would be optimal in a given competitive interaction. This can be expected in the case where a rival introduces an innovative new product, for which a retaliation strategy is difficult to design due to lead-time and the more complex nature of this attack. This relationship can also be inferred from the literature dealing with organisational decision-making as the outcome of bureaucratic processes (organisational process perspective, see, for example, Simon 1947 or Cyert and March 1963). If a competitive new product is radically new, it requires a more complex decision-making process and hence, may lead to a
response lag. We expect, therefore, expect that the innovativeness of the rival product has a negative effect on retaliation speed.

From the preceding discussion we summarise the following propositions:

H3: Speedier retaliation is to be expected:
   a) in growing markets,
   b) in more concentrated markets,
   c) under conditions of high price-sensitivity
   d) for smaller incumbents
   e) when the incumbent perceives the new product as threatening and
   f) when the rival's new product is less innovative.

Propositions: Breadth of Retaliation

Concentration - The literature on strategic groups suggests that in markets with a large number of competitors the number of relevant competitive parameters increases (e.g., Kim and Lim 1988). Competitors generally try to pursue a differentiation strategy by employing a wide range of marketing mix instruments to carve out a profitable and more stable position in the market. Porter (1980) noted, that differentiation increases margins, decreases competitive rivalry and lowers customers' price-sensitivity. In more concentrated markets the competitive conduct will be focused on fewer submix parameters. In this environment a narrower strategy orientation, such as overall cost leadership through economies of scale effects, is more suitable (Kim and Lim 1988). Hence, we posit that retaliation will be less broad (i.e., utilising fewer marketing mix instruments) under high industry concentration.
Price-Sensitivity - If price is a dominant competitive parameter, the effect on industry profitability is usually negative. Therefore, firms try to emphasise other areas of competition, for example, on the promotion mix and/or distribution mix. This will be especially true if the demand side is price-sensitive. Therefore, if a product is introduced at a lower price in price-sensitive markets, a broader response on more marketing parameters seems to be necessary to counter-attack.

From the preceding discussion we summarise that:

H4: The response of the defender will be broader:
   a) in less concentrated markets
   b) under conditions of high price-sensitivity.

Empirical Study

It has been asserted that there is a lack of empirical research on competition within the marketing discipline (Eliashberg and Chatterjee 1985, Bowman and Gatignon 1995). The majority of competitive research is of a normative analytical nature (such as Hauser and Shugan 1983, Kumar and Sudharshan 1988, Gruca, Kumar and Sudharshan 1992) and, therefore, poses several limitations with regard to empirical testing. Our study seeks to add to the limited empirical base by studying actual managerial reaction in the context of new product introductions using a survey instrument. This methodology allows us to ask managers directly about their reactions to a new product in their market. Furthermore, the survey provides the opportunity to study such behaviour cross-sectionally to investigate whether there are certain patterns in the choice of defence strategies across industries.
Data
For this study we sampled from a broad range of industries, including both consumer goods and industrial goods manufacturers. The questionnaire was designed, pretested, revised and mailed to a random sample of 910 senior marketing executives, resulting in a returned sample size of 249 usable questionnaires. This yields an effective response rate of 27.4%. A chi-square test was conducted to check for non-response bias, by comparing the distribution of the sample with the distribution of the mailing list on multiple dimensions including size, industry and early versus late respondents. The distributions on all these dimensions were statistically identical, leading to the conclusion that a significant non-response bias is not evident in this survey.

In terms of breakdown by industry: 18.9% of the sample comprised electrical and electronic engineering; 18.5% mechanical engineering; 10.0% food, drink and tobacco, 9.2% paper, paper products, printing and publishing; 8.4% chemicals and pharmaceutical; 6.8% automobiles and 28.2% other industries.

In total, 186 respondents (74.7%) indicated that a new product had been introduced into their product category. The respondents were asked to recall how long ago the competitor's new product was introduced. The mean for this variable is 13.4 months (s=11.9). Of the respondents in the sample, 50.3% indicated that they became aware of the new product before its actual market launch, 37.3% at the time of its launch and 12.4% after launch. The assessment of the involvement of the respondent revealed that 83.5% were highly involved, 13.7% were moderately involved and 2.8% had low involvement. The latter cases were excluded from the analysis.

Measures
We developed the questions for the questionnaire in order to operationalise the constructs that were specified in the conceptual framework. In addition to measures that were available from
the literature, an important input for the generation of the sample items was interviews carried-out with executives in an international executive program prior to the design of the questionnaire. Multi-item measures were used for most of the variables as their use provides considerable advantages over single-item measures (Jacoby 1978, Churchill 1979).

With respect to multi-item measures, a distinction has to be made between reflective (effect) and formative (cause) indicators (Fornell 1986, Bagozzi and Baumgartner 1994). We use both types of measures in this study: In situations where observed variables are regarded as manifestations of underlying constructs, a reflective measurement model is used. In this case the scales' psychometric properties were assessed by means of criteria based on confirmatory factor analysis (Fornell and Larcker 1981, Anderson, Gerbing and Hunter 1987, Anderson and Gerbing 1988). If necessary, the item pools were purified. Confirmatory factor analysis is considered to be superior in the context of scale validation to more traditional criteria (such as Cronbach's alpha) because of its less restrictive assumptions (Bagozzi and Phillips 1982; Gerbing and Anderson 1988; Bagozzi, Yi, and Phillips 1991). If, on the other hand, a construct is merely thought of as a summary index of observed variables, we use a formative measurement model. In this case, observed variables cover different facets of the construct and, thus, cannot be expected to have significant inter-correlations.

A table of sample items used in the analysis is given in Table 2. We used formative scales for the two dependent variables related to reactions on the marketing submixes; product (3 items) and price (3 items) (RETPROD and RETPRICE, see Table 2). Values for these constructs were computed as averages of the corresponding indicators. The breadth of reaction was operationalised based on the combination of these reaction items plus additional items on promotion and distribution reactions in the following formative manner: For each of the nine items, a binary variable was defined being equal to 1 if a reaction had taken place on the specific parameter (regardless of the intensity) and 0 otherwise. The variable BREADTH is then defined as the sum of these nine variables thus indicating the total number of reaction parameters on which a reaction occurred.
Reaction speed (SPEED) as well as all independent variables, except for industry concentration (CONC) and incumbent's size (INCSIZE), which are single-item measures, were operationalised in a reflective way. For each of the constructs a single-factor confirmatory factor analysis was carried out using LISREL 8 (Jöreskog and Sörbom 1993). Information on these analyses is shown in Table 3. Composite reliability and average variance extracted are two measures suggested by Fornell and Larcker (1981) to examine the shared variance among a set of observed variables measuring an underlying construct. In general, composite reliabilities of at least .6 and average variances extracted of at least .5 are considered to be desirable (Bagozzi and Yi 1988). Such threshold values, however, should not be interpreted too strictly because, as Bagozzi and Baumgartner (1994, p.403) have pointed out "it is difficult to justify such guidelines without considering the context of a given measurement procedure". Overall, the results shown in Table 3 suggest that each of the constructs has a reasonable degree of internal consistency between the corresponding indicators. This conclusion is supported by the fact that all the factor loadings were significant at the .001 level, which has been suggested as a criterion of convergent validity by Bagozzi, Yi and Phillips (1991).

The remaining statistics shown in Table 3 are overall fit measures, which evaluate how well the confirmatory factor analysis model reproduces the observed variables' covariance matrix. As the $c^2$-test in covariance structure analysis is subject to serious limitations, we use the ratio of $c^2$ over the degrees of freedom as a descriptive measure of overall fit (Jöreskog and Sörbom 1989, Bagozzi and Baumgartner 1994) rather than strictly interpreting $c^2$ as a test
statistic. Carmines and McIver (1981) suggested that values of this ratio smaller than 2 indicate acceptable model fit. GFI and AGFI are two descriptive fit measures (Jöreskog and Sörbom 1989) for which usually a minimum value of .9 (Bagozzi and Yi 1988) is considered to be acceptable. The same threshold value may be applied to CFI which is an incremental fit index suggested by Bentler (1983). RMSEA is a fit measure based upon the concept of non-centrality (Steiger 1990). Usually values up to .08 are considered to indicate a reasonable model fit (Browne and Cudeck 1993).

In summary, the measures shown in Table 3 suggest that the six models (SPEED, INNOV, GROWTH, EXIT, PRICESEN and THREAT) fit the data well. Additionally, discriminant validity between the factors shown in Table 3 was assessed by two independent procedures: First, two factors at a time were combined in a confirmatory factor analysis model. The fit of these models was then compared with a model where the correlation between the two factors was fixed to be equal to unity. As this additional restriction led to a significant increase in $c^2$ in every case, discriminant validity is evident (Bagozzi, Yi and Phillips 1991). Secondly, we applied the Fornell and Larcker criterion (Fornell and Larcker 1981) which also yielded positive results.

Results

Descriptive Results on Retaliatory Behaviour

As described earlier, 186 respondents recognised a new product entry, with the degree of innovativeness varying between minor innovations, such as product refinements, and radically new products. Most incumbents indicated that they reacted to the competitive new product. In total, 93% reacted on at least one marketing mix element. Gatignon, Robertson and Fein (1997) report a reaction frequency close to the one observed in our study. Studying 346 incumbents they concluded that 90% "reacted in some way". Bowman and Gatignon (1995), who investigated response time to new product introductions in PIMS, found that 60.1% of
the competitors "made a move in reaction to the new product" (p.46). These studies focus on competitive reactions to new products and not on reactions to new entrants, i.e., new companies in a particular market - as studied by Biggadike (1979), Yip (1982a) or Robinson (1988). With respect to competitive reactions to new products, the literature gives numerous indications that a firm's propensity to react to new product entry is quite high. Our study further supports these findings.

Reactions were most frequently on the product mix, either as product improvements, new product introduction, product repositioning or a combination of these (i.e., out of the 186 respondents, 151 or 81.2% indicated that they used a product mix related instrument to react to the rival new product). Within this submix 21% of the respondents reacted to the new product with a new product introduction, 8.6% repositioned and 7% improved their existing products. If reactions occurred on multiple elements of the product submix (in 63.4% of the cases), then the combination of product improvement and new product introduction was the most favoured response pattern (15.6%).

Surprisingly, there was less evidence of pricing response being used as frequently as the literature suggests. Reactions on the pricing submix occurred in 54.8% of the cases, of which 27.4% were price cuts - either alone (17.2%) or introduced in addition to special trade discounts (10.2%). 11.3% of the respondents indicated that they raised the price for their existing products when faced with a new product entry. This finding, which is in line with the recommendations of the normative Defender model (Hauser and Shugan 1983), generally contradicts common management belief.
Reactions on the distribution submix or the promotion submix occurred in less than one-half of the cases: 41.9% increased advertising (39.8%) or promotional activities (only 2.2%) and 41.4% reacted with variations in distribution policy. The relatively high incidence of retaliation on the distribution mix in response to a new product entry is a surprising result. The construct 'breadth' indicated how many marketing submixes were used in the defence. Most often the defence involved two or three elements of the marketing mix (18.3% and 23.1%, respectively). A defence on a single marketing mix element occurred in 9.3% of the cases.

**Hypotheses Testing**

The hypotheses were tested using multiple regression analysis. For each of the four hypotheses, a regression model was analysed including the respective retaliatory variable as the dependent variable. The independent variables included the hypothesised predictors and, given the cross-sectional nature of the sample, a dummy control variable (TYPE) equal to 1 for industrial markets and to 0 for consumer goods markets. For the purpose of the regression analysis, values for the constructs measured by multiple indicators in a reflective way (see Table 2) were computed by averaging the corresponding indicators. Note that because of the nature of our hypotheses related to customer's price-sensitivity, the variable PRICSEN was not included directly in the regression analysis. Rather it was multiplied by a dummy variable (1 if the new product was priced lower than the incumbent's product, 0 otherwise). Thus, the measure for price-sensitivity included in the regression analysis is a modified measure being distinct from 0 only if the new product was less expensive.

_______________________

See Table 4

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The results of the regression analyses are summarised in Table 4. Hypothesis H1 is confirmed as far as the positive effects of innovativeness and market growth and the negative effects of industry concentration and incumbent size. With regard to the predictor 'innovativeness', we had argued that innovative new products represent a major threat and incite strong retaliatory
moves on the product mix. Our empirical result supports this view (β=.21,p<.05). Firms do try to extend their market power and react on the same dimension by introducing a new product. This finding provides support for the notion of tit-for-tat behaviour; if a competitor is threatened on the product mix, it will retaliate with the same instrument. The stronger is the attack on that specific dimension (i.e., the more innovative the new product), the stronger the reaction on the product mix. Also, strong product retaliation is more likely to occur in high growth markets (β=.25,p<.05), suggesting an interplay between competitive forces and the stage of product life cycle (Lambkin and Day 1989). This finding can be contrasted with the view that firms in high growth markets react less frequently to competitors due to capacity or general managerial or financial constraints (Scherer and Ross 1992). Our result signifies that growing markets signal a profit potential and that firms are more likely to invest and defend their positions. This view is supported by Day and Wensley (1983) and Day (1986) who argue that firms develop certain expectations when committing resources to new businesses. Expectations are likely to be proportional to the profit potential and firms will be inclined to defend if competitors jeopardise their plans.

The competitive structure of the market also plays a significant role in determining the strength of product retaliation. The analysis reveals that the greater the market concentration the less likely the threatened firm is to retaliate strongly on the product dimension (β=-.18, p<.05). This is in contrast to Porter (1980) who posits that as concentration increases, reactions are expected to increase. Perhaps incumbents in highly concentrated markets try to avoid aggressive competitive conduct as the likelihood of a significant share loss is prevalent. The rational strategy, therefore, would be to prevent competitive warfare.

We also find that larger incumbents are less inclined to retaliate strongly on the product mix (β=-.12,p<.10). This provides confirmation (.10 level) of our proposition that larger firms may exhibit more inflexibility and inertia and may be less inclined to react to new products. This could explain why larger firms (in many cases market pioneers) have experienced reversals of their fortunes when out-competed by a rival; they were unable to react appropriately by
introducing a competitive product to counter-attack. This finding is also in line with the result on the relationship between industry concentration and the strength of product retaliation. In concentrated markets firm size tends to be larger than in less concentrated markets and we would therefore expect a similar response pattern.

Additionally, the signs associated with the impact of price-sensitivity and threat are consistent with the hypotheses, but parameter estimates lack significance. It is interesting to observe that product-based retaliation seems to be more common for industrial products than for consumer products. This observation is plausible as competition between industrial products is usually more associated with technical product features than in consumer markets.

The strongest support for H2 (as shown in Table 4) is observed in connection with the effect of price-sensitivity on the strength of price retaliation. When the rival new product has been introduced at a lower price under conditions of price-sensitivity, we expect the threatened firm to retaliate more strongly on the price mix (β=.26, p<.05). This result is managerially appealing and provides further evidence for tit-for-tat behaviour, i.e., competitors are reacting in kind by trying to out-compete each other on the price dimension. The impact of innovativeness, however, is opposite to the hypothesis (β=-.13, p<.05). Firms that are in the situation of being threatened by an innovative new product may try to avoid price competition unless they are forced to (i.e., when the rival introduces at a lower price). Finally, size of the incumbent is not related significantly to a price reaction.

H3 is essentially confirmed. Five of the six hypothesised effects are significant and show the hypothesised signs. We hypothesised that the more innovative the rival new product, the longer the response time. This is confirmed (β=-.12,p<.05) and suggests that the degree of newness impairs the ability of the threatened firm to counter-act quickly. This is an interesting finding which also has managerial importance: the more innovative the rival's new product introduction, the longer it takes competitors to develop a response strategy. This may call for a strategy of unremitting innovation for companies pursuing sustained market leadership. As such, this result adds to our knowledge about reaction speed and can therefore be regarded as
an extension of the research by Bowman and Gatignon (1995), who acknowledge that type of entry might have an impact on response time. The positive effect of market growth on speed of reaction is also confirmed ($\beta=.13$, $p<.05$) in line with Bowman and Gatignon (1995).

If firms view a market as highly attractive, speedier responses are more prevalent. The influence of incumbent size is negative as hypothesised ($\beta=-.15$, $p<.05$). Larger firms seem not only to react less strongly when threatened by a new product but also slower. Price-sensitivity has a significant positive effect ($\beta=.17$, $p<.05$), as does the predictor ‘perceived threat’ ($\beta=.15$, $p<.05$). The latter result supports the finding by MacMillan, McCaffery and van Wijk (1985) in their study about competitor response time to easily imitated new products in the financial service industry. They found that less threatening new service introductions slowed reactions.

In H4 we argued that the response of the defender will be less broad (fewer marketing mix instruments) under more concentrated market conditions. The empirical results fully confirm this proposition ($\beta=-.15$, $p<.05$). We also hypothesised that price-sensitivity would encourage a broader response (multiple marketing instruments). This expectation is also confirmed ($\beta=.21$, $p<.05$).

On an overall basis, our analysis shows a satisfactory degree of support for our theoretical reasoning (Table 4). Of the 18 hypothesised effects, 11 are supported with a significance level of at least .05 and 1 at .10. Of the remaining effects, 5 are non-significant, of which 3, however, show the hypothesised signs, and only one finding contradicts the hypothesised effects. The models’ explanatory power varies considerably by dependent variable. It is highest for SPEED ($R^2=.20$), followed by RETPROD ($R^2=.15$) and RETPRICE ($R^2=.12$), then BREADTH ($R^2=.10$). The issue of low overall explanatory power in studies of retaliatory behaviour will be discussed in the concluding section of this paper.

**Discussion**

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Scholars of marketing have been emphasising the need for more empirical research on competition for a number of years (e.g., Weitz 1985, Robinson 1988). Our research is in line with this call. The present study contributes to an important area in strategic marketing as its main objective is to understand how established firms respond to a new product entry into their market. Our research sheds more light on the question of how firms react given the characteristics of the industry, the incumbent, and the new product entrant. In this regard, our work is different from empirical research on competition which describes the results of competitive activities but provides limited insight as to why these outcomes occur (which is, for example, the case with research on response functions and reaction matrices).

The paucity of research on competition, especially in the area of empirical business strategy research, is mainly due to the fact that good data in this area are scarce and/or of a proprietary nature. Our intention was to contribute to this field by conducting research using primary data. The most prevalent stream of empirical work is based on secondary data, mainly PIMS, or on single-industry data. Furthermore, the research design provided us with the opportunity to use measures specifically designed for the purpose of the study. In addition to this, our research represents an extension of the research on competitive reactions to new entrants as studied by Biggadike (1979), Yip (1982a), Robinson (1988) and Smiley (1992). Our main goal was to understand competitive reactions to new product entries, which occur more frequently than the entry of a new competitor.

This research has provided interesting new insights into the retaliatory behaviour of firms. Of particular interest is the degree of innovativeness of the rival new product. Our analysis reveals that the more innovative a rival new product, the stronger the defender will use product-based instruments to counter-attack. As innovativeness has a significant positive effect on retaliation on the product mix we can conclude that tit-for-tat behaviour is evident in this study. Competitors challenged on the product dimension react on the same submix. Tit-for-tat behaviour, or a matching move, as this concept was described in Schelling's (1960) seminal work on conflict resolution, is a powerful signal in its own right. It indicates a competitor's
strong commitment to defend the status quo. Our results also show that innovative new products slow the response, possibly because it takes time to develop an adequate response. Market growth has a positive effect on both product mix retaliation and on reaction speed. This signifies that market growth rate signals profitability and, therefore, attractiveness for industry players, thus providing them with an incentive to defend their position in the market.

We also highlighted the effect of industry concentration and incumbent size. Both predictors have a negative impact on the strength of product retaliation and the size of the incumbent also has a negative impact on speed of response. This seems to have captured the notion of incumbent inertia. Larger firms not only react slower but also less strongly on the product dimension when challenged by a new product introduction. This may be due to a fear of cannibalising the profit stream from existing products, as has been discussed in the literature (e.g., Reinganum 1983, Ghemawat 1991). As mentioned earlier, highly concentrated markets are usually populated by larger firms, which could explain that industry concentration has a negative effect on the strength of product retaliation. It may also indicate that in concentrated industries, certain norms of conduct have crystallised and that co-operative behaviour is a more prevalent strategy component. This, at least, has been suggested by Moore and Moore (1990), who showed that co-operation is more likely to occur as the probability of continued play increases.

Price-sensitivity also plays an important role in determining retaliation. This variable has a significant effect on retaliation on the price mix and on the speed of reaction. Also, under conditions of price-sensitivity, firms try to respond more broadly as competition solely based on price can be very harmful. Porter (1980) and Dutton and Jackson (1987) proposed that competitors are motivated to respond if an action is viewed as threatening. Our analysis shows that the perceived threat of the new product introduction has a positive impact on reaction speed. MacMillan et al. (1985) also found that the more a competitor's action threatens a firm's existing position, the quicker the firm responds.
We also intended to highlight some problems of operationalisation and measurement of research constructs in the marketing strategy domain. In this area empirical researchers have paid only limited attention to issues of construct validity and reliability, which, for example, in the consumer behaviour domain are addressed as a matter of course. We tried to address this shortcoming by applying more stringent tests of scale validity and reliability using confirmatory factor analysis. Measurement paradigms have evolved from first generation approaches of validation and reliability tests (exploratory factor analysis, Cronbach's coefficient alpha and item-to-total correlation) to second generation methods notably including confirmatory factor analysis (Baumgartner and Homburg 1996). We strongly emphasise the need to pay more attention to these measurement issues and to use the same test requirements for constructs in business strategy research as in the consumer behaviour domain.

**Limitations**

Because this study tries to explain competitive retaliation in a multivariate setting, several important limitations should be recognised. In general, the methodological paradigm chosen in this research, the survey methodology, has certain inadequacies. The methodology relies on a person's perception of an event in the past and inevitably we have to address issues of recall and post-hoc rationalisation. However, the research in the field of strategy comparing archival data with managers' self-reports has shown that there is reasonable congruence between the two data sources (Keats and Hitt 1988). Survey methodology has the advantage that data can be collected for a specific set of research questions. In this study, for example, we were interested in assessing the impact of the innovativeness of a competitor's new product on the retaliatory behaviour of an incumbent. The notion of innovativeness has not been adequately captured with any available secondary data database as is also the case with many other variables that are of interest in marketing strategy research. Survey data is ultimately another pillar of methodology for empirical research. As such, we argue that our study supplements existing methodologies by trying to view the problem not only from a different angle but also through a different lens.
The problem of scale inadequacy is well recognised in marketing strategy research. It refers to the paucity of established measurement scales to address concepts of strategy content, organisational characteristics, or strategic processes. In the consumer behaviour domain, on the other hand, we find a range of reasonably well established scales for a variety of different constructs and concepts. Future research should emphasise the development of valid and reliable measures for strategy research with the objective to build a pool of measures similar to those in consumer behaviour research (e.g., Bruner and Hensel 1992, 1996).

Another limitation is due to the cross-sectional nature of our study. Our sample is heterogeneous with regard to the industries included in the study. Thus, the explanatory power of our models is relatively low. Clearly, the grouping of businesses would greatly increase the $R^2$-values. We were, however, interested in response patterns that can be generalised across industries and did not develop a sample large enough to analyse industry groupings. Low $R^2$s also signify that important dimensions have not been captured in our study design. For example, scholars in organisational theory have emphasised the importance of intraorganisational power structures in explaining the behaviour of organisations (Pfeffer and Salancik 1978). Other important organisational factors may include aspects of organisational structure, top management team characteristics, or personality traits of decision-makers as well as historical aspects such as success of previous decisions related to competitive moves or past organisational performance (Rajagopalan, Rasheed and Datta 1993).

It is reasonable to assume that a broader perspective including these and other organisational attributes and decision-specific factors (decision urgency and complexity, for example) would lead to an improved understanding of the subject we have studied. These factors, however, are very difficult to assess in cross-sectional studies, as they usually involve intensive co-operation of the responding firm. Single-industry studies are more adequate in addressing these issues as they provide means to control environmental and organisational peculiarities. Although this could enhance the internal validity, it would reduce the researcher's ability to generalise to other environmental contexts. In this context it is interesting to note that significant findings in
multi-industry studies generally indicate a robust theory and, as such, we feel that we have provided valuable insights into competitive response behaviour.

Another limitation is that there are some important reactions that have not been captured in our research. These are, for example, reactions outside the marketing mix, such as capacity additions, patent issues, financial announcements and lawsuits. The inclusion of reaction parameters outside the marketing mix could potentially enrich the investigation.

**Managerial Implications**

Relevance of the research to managers can be assessed both from the perspective of the incumbent firm, which must defend, and the perspective of the rival firm which is introducing the new product. The managerial inferences that can be drawn from our research are based on the documentation of existing practices when firms are threatened by new products. We cannot assert that the defence actions taken were necessarily "appropriate", but rather that these actions represent the norms across a cross-section of industries.

From the perspective of an **incumbent** faced with a new product entry, the following reactions are most prevalent and perhaps should be emulated or considered:

- **product retaliation** -- under conditions of a highly innovative rival new product, high market growth, low industry concentration, a smaller incumbent, and in industrial products.
- **price retaliation** -- under conditions of high price-sensitivity but low innovativeness of the rival new product.
- **speed** -- under conditions of low innovativeness of the rival new product, high market growth, a smaller incumbent, high price-sensitivity, and a more significant threat.
- **breadth on multiple marketing instruments** -- under conditions of low market concentration and high price-sensitivity.
From the point of view of the **new product entrant**, the managerial implications are when to expect reactions and of what form. This information is important input for the managerial process of launching new products in the market. Empirical research indicates that new products are usually associated with a high failure rate (e.g., Moorman 1995). This has many causes but the most salient arguments are that products fail either if they do not match customer needs or due to unforeseen competitive counter-moves as incumbents react to block the new entry. Our study helps new product entrants to assess the likelihood of these reactions in order to develop launch strategies that include also counter-defense plans. Managers should be in a better position to develop these plans based on knowledge of reaction propensities as revealed in this research and in previous research on market defence and therefore increase the likelihood that the new product succeeds in a competitive business environment.
Table 1
EMPIRICAL CONTRIBUTIONS ON COMPETITIVE REACTIONS
TO NEW PRODUCT OR MARKET ENTRY

<table>
<thead>
<tr>
<th>AUTHOR(s)</th>
<th>RESEARCH PROBLEM</th>
<th>DATABASE</th>
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<tbody>
<tr>
<td><strong>Competitive Stimulus: Potential Market Entry</strong></td>
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<tr>
<td>Smiley (1988)</td>
<td>Use of entry-deterring strategies: advertising, R&amp;D, learning advantages, excess capacity, limit-pricing, reputation, patenting</td>
<td>primary data - multiple industries</td>
<td>Generally, incumbents do not engage in entry deterrence. For new products, incumbents emphasise use of advertising and patenting. For existing products, firms attempt to fill all available product niches, hide profit data and use advertising to create loyalty.</td>
</tr>
<tr>
<td>Bunch &amp; Smiley (1992)</td>
<td>Use of entry-deterring strategies: advertising, R&amp;D, learning advantages, excess capacity, limit-pricing, reputation, patenting</td>
<td>primary data - multiple industries (same data as above)</td>
<td>In addition to results obtained by Smiley (1988), study indicates that entry deterring strategies are used more often in concentrated, research intensive markets that are populated by large firms (although size variable had no effect in mature markets). Firms engage in entry-deterrence less when other barriers exist.</td>
</tr>
<tr>
<td>Singh, Utton &amp; Waterson (1991a&amp;b)</td>
<td>Use of entry-deterring strategies: advertising, R&amp;D, learning advantages, excess capacity, limit-pricing, reputation, patenting</td>
<td>primary data - multiple industries</td>
<td>The majority of firms feel that strategic entry deterrence is either not necessary or not in the company’s interest. If they engage in entry deterrence, advertising and R&amp;D play the most important role, next to securing supplies and installing an assured selling network.</td>
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<tr>
<td><strong>Competitive Stimulus: New Market Entry</strong></td>
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<tr>
<td>Biggadike (1979)</td>
<td>Competitive reactions on price, capacity, product, marketing expenditure and distribution changes (entrant perspective)</td>
<td>PIMS</td>
<td>No reaction is the norm. If reaction occurs, incumbents emphasise use of advertising and R&amp;D to slow entry and to maintain market position.</td>
</tr>
<tr>
<td>Yip (1982a)</td>
<td>Competitive reactions on price, capacity, product mix, marketing expenditures and distribution changes (entrant perspective)</td>
<td>PIMS SPI start-up business data</td>
<td>No reaction to entry is the norm (81% in year 1 and 91% in 2 year after entry, respectively). Retaliation is usually associated with high-growth markets.</td>
</tr>
<tr>
<td>Gatignon, Anderson &amp; Helsen (1989)</td>
<td>Variation in marketing-mix in response to entry of a new competitor.</td>
<td>OTC drug market and airline industry</td>
<td>Firms retaliate with their most effective marketing mix parameters and de-emphasize use of less effective submixes. Effectiveness is measured in terms of elasticities.</td>
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<td>AUTHOR(s)</td>
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<tr>
<td><strong>Competitive Stimulus: New Product Entry</strong></td>
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<tr>
<td>Hauser &amp; Gaskin (1984)</td>
<td>Application of Defender model to compare predictive ability to other forecasting methods.</td>
<td>single-industry data (grocery)</td>
<td>Assessment suggests that Defender predictions differ from traditional predictions because of both, the method of estimating taste variation and the use of “per $” perceptual maps. Nevertheless, Defender appears to make predictions within the range of “actual” test market shares.</td>
</tr>
<tr>
<td>Cubbin &amp; Domberger (1988)</td>
<td>Advertising response to new product entry.</td>
<td>secondary data</td>
<td>In 38% of the analysed cases the study finds positive advertising response. The higher the market share of incumbents and the lower the market growth, the higher the likelihood of an advertising reaction to the new product.</td>
</tr>
<tr>
<td>Heil &amp; Walters (1993)</td>
<td>Strength of competitive reactions to new product signals.</td>
<td>primary data - multiple industry</td>
<td>New product introductions, characterised by signal hostility and significant consequences for the competing firm, trigger strong competitive reactions.</td>
</tr>
<tr>
<td>Bowman &amp; Gatignon (1995)</td>
<td>Response time to a new product introduction.</td>
<td>PIMS SPIYR data</td>
<td>Response is faster in high growth markets and in markets characterised with low customer switching costs. Slower responses can be expected the lower market share of the defender and the higher market share of the attacker. Development cycle times and frequency of product changes appear critical in explaining response time.</td>
</tr>
<tr>
<td>Gatignon, Robertson and Fein (1997)</td>
<td>Success of response strategies to a new product entry.</td>
<td>primary data - multiple industry</td>
<td>Success of reaction is positively associated with speed; the greater the breadth of the reaction, the less successful; price reductions are not associated with success of reaction.</td>
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</tbody>
</table>

1 SPIYR provides information on the explanatory variables in the PIMS database.
<table>
<thead>
<tr>
<th>AUTHOR(s)</th>
<th>RESEARCH PROBLEM</th>
<th>DATABASE</th>
<th>FINDING(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chen &amp; MacMillan</td>
<td>Non-response and response-lag to strategic and tactical moves.</td>
<td>single-industry data (airline</td>
<td>Competitor dependence leads more often to non-response and increases response delay and likelihood of tit-for-tat response. Action irreversibility has the opposite effect.</td>
</tr>
<tr>
<td>(1992)</td>
<td></td>
<td>industry)</td>
<td></td>
</tr>
<tr>
<td>Chen, Smith &amp; Grimm</td>
<td>Number of responses and response-lag to strategic and tactical moves.</td>
<td>single-industry data (airline</td>
<td>The number of competitors affected by an action and the strategic importance of the markets under attack increase the number of responses; strategic actions reduce the number of responses and delay competitive retaliation.</td>
</tr>
<tr>
<td>(1992)</td>
<td></td>
<td>industry)</td>
<td></td>
</tr>
</tbody>
</table>
### Table 2
CONSTRUCTS: DEFINITIONS AND SAMPLE-ITEMS

<table>
<thead>
<tr>
<th>Construct</th>
<th>Name</th>
<th>Definition</th>
<th>Measurement Type</th>
<th>Sample Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>RETPROD</td>
<td>Retaliation on the product mix</td>
<td>formative multi-item</td>
<td>product improvements / introductions / repositionings</td>
<td></td>
</tr>
<tr>
<td>RETPRICE</td>
<td>Retaliation on the price mix</td>
<td>formative multi-item</td>
<td>price increase / decreases, trade discounts</td>
<td></td>
</tr>
<tr>
<td>BREADTH</td>
<td>Number of instruments used in reaction</td>
<td>formative multi-item</td>
<td>product improvements / introductions / repositionings / price increase / decreases, trade discounts / changes in advertising / promotion budget / expansion in salesforce or distribution</td>
<td></td>
</tr>
<tr>
<td>SPEED</td>
<td>Reaction speed / response lag</td>
<td>reflective multi-item</td>
<td>&quot;Given our capabilities we reacted without delay to the competitor's new product.&quot;</td>
<td></td>
</tr>
<tr>
<td>INNOV</td>
<td>Degree of innovativeness of rival new product</td>
<td>reflective multi-item</td>
<td>&quot;The competitor's new product represents a substantial change in technology.&quot;</td>
<td></td>
</tr>
<tr>
<td>GROWTH</td>
<td>Market growth in product category</td>
<td>reflective multi-item</td>
<td>&quot;In this product category sales were growing fast.&quot;</td>
<td></td>
</tr>
<tr>
<td>EXIT*)</td>
<td>Exit costs for threatened firm</td>
<td>reflective multi-item</td>
<td>Assessment of ability of the firm to absorb personnel, alternate uses for the facilities, impact on costs of other business within company.</td>
<td></td>
</tr>
<tr>
<td>PRICSEN</td>
<td>Price-sensitivity</td>
<td>reflective multi-item</td>
<td>&quot;The sales volume is very much dependent on the prices we set.&quot;</td>
<td></td>
</tr>
<tr>
<td>THREAT</td>
<td>Perceived threat of new product introduction</td>
<td>reflective multi-item</td>
<td>&quot;We did not perceive the new product as having a serious impact on our own business.&quot;</td>
<td></td>
</tr>
<tr>
<td>CONC</td>
<td>Industry concentration</td>
<td>single-item</td>
<td>Percentage of sales accounted for by four largest competing businesses (CR4).</td>
<td></td>
</tr>
<tr>
<td>INCSIZE</td>
<td>Size of threatened firm</td>
<td>single-item</td>
<td>Firm's position in the market in terms of market share.</td>
<td></td>
</tr>
</tbody>
</table>

*) Measure based on Burke (1984)
<table>
<thead>
<tr>
<th>Construct</th>
<th>Number of Items</th>
<th>Composite Reliability</th>
<th>Average Variance Extracted</th>
<th>$\chi^2/df$</th>
<th>GFI</th>
<th>AGFI</th>
<th>CFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed of retaliation (SPEED)</td>
<td>5</td>
<td>.88</td>
<td>.59</td>
<td>1.69</td>
<td>.99</td>
<td>.95</td>
<td>.99</td>
<td>.06</td>
</tr>
<tr>
<td>Innovativeness of new product (INNOV)</td>
<td>4</td>
<td>.87</td>
<td>.62</td>
<td>4.76</td>
<td>.97</td>
<td>.86</td>
<td>.98</td>
<td>.14</td>
</tr>
<tr>
<td>Market growth (GROWTH)</td>
<td>4</td>
<td>.83</td>
<td>.56</td>
<td>.39</td>
<td>.99</td>
<td>.99</td>
<td>.99</td>
<td>.01</td>
</tr>
<tr>
<td>Incumbent exit costs (EXIT)</td>
<td>8</td>
<td>.91</td>
<td>.56</td>
<td>2.27</td>
<td>.94</td>
<td>.88</td>
<td>.98</td>
<td>.08</td>
</tr>
<tr>
<td>Price-sensitivity (PRICSEN)</td>
<td>4</td>
<td>.78</td>
<td>.47</td>
<td>.90</td>
<td>.99</td>
<td>.99</td>
<td>.99</td>
<td>.01</td>
</tr>
<tr>
<td>Threat posed by entrant (THREAT)</td>
<td>3</td>
<td>.72</td>
<td>.47</td>
<td>a)</td>
<td>a)</td>
<td>a)</td>
<td>a)</td>
<td>a)</td>
</tr>
</tbody>
</table>

a) Overall fit criteria are not meaningful in the case of three items in a single-factor model as there are no degrees of freedom.
Table 4  
HYPOTHESES TESTING a), b)  
================================

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Retaliation on Product Mix</th>
<th>Retaliation on Price Mix</th>
<th>Reaction Speed</th>
<th>Breadth of Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(RETPROD) (H1)</td>
<td>(RETPRICE) (H2)</td>
<td>(SPEED) (H3)</td>
<td>(BREADTH) (H4)</td>
</tr>
<tr>
<td>INNOV</td>
<td>.21** (+)</td>
<td>-.13** (+)</td>
<td>-.12** (-)</td>
<td>c)</td>
</tr>
<tr>
<td>GROWTH</td>
<td>.25** (+)</td>
<td>c)</td>
<td>.13** (+)</td>
<td>c)</td>
</tr>
<tr>
<td>CONC</td>
<td>-.18** (-)</td>
<td>c)</td>
<td>-.09 (+)</td>
<td>-.15** (-)</td>
</tr>
<tr>
<td>INCSIZE</td>
<td>-.12* (-)</td>
<td>-.07 (-)</td>
<td>-.15** (-)</td>
<td>c)</td>
</tr>
<tr>
<td>EXIT</td>
<td>-.01 (+)</td>
<td>c)</td>
<td>c)</td>
<td>c)</td>
</tr>
<tr>
<td>PRICSEN</td>
<td>.07 (+)</td>
<td>.26** (+)</td>
<td>.17** (+)</td>
<td>.21** (+)</td>
</tr>
<tr>
<td>THREAT</td>
<td>.06 (+)</td>
<td>c)</td>
<td>.15** (+)</td>
<td>c)</td>
</tr>
<tr>
<td>TYPE</td>
<td>.09** c)</td>
<td>.01 c)</td>
<td>.02 c)</td>
<td>-.06 c)</td>
</tr>
<tr>
<td>R²</td>
<td>.15</td>
<td>.12</td>
<td>.20</td>
<td>.10</td>
</tr>
<tr>
<td>F-statistic</td>
<td>3.29**</td>
<td>7.98**</td>
<td>4.52**</td>
<td>4.84**</td>
</tr>
</tbody>
</table>

a) Table entries are standardised regression coefficients (beta coefficients). Signs of hypothesised effects are shown in parentheses.
b) **/* indicates significance at the .05/.10 level, respectively (two-tailed test)
c) indicates that an effect was not hypothesised
Figure 1
CONCEPTUALIZATION OF REACTIONS TO COMPETITIVE ENTRY

*) Generalized for entry of new competitors or new products
References


Pfeffer, Jeffrey and Gerald R. Salancik (1978), *The External Control of Organisations: A


Journal of Business Research, 18, 245-258.


Stackelberg, Heinrich von (1934), Marktform und Gleichgewicht, Vienna: Julius Springer.


Footnotes:

1 Co-operative moves have the property that they do not interfere with the objectives of the rival competitor (e.g., price increases are generally designed as co-operative moves: the initiator anticipates that other competitors will follow). Moves are non-threatening if they go unnoticed (e.g., internal reorganisations) or if they are misperceived by other competitors regarding their potential to make inroads into their revenue stream (e.g., a new entrant pursuing a niche strategy).

2 It has to be noted that the marketing literature predominantly focuses on marketing mix response but there are numerous other ways to counter-attack, for example, with efficiency gains and cost reductions, patenting and lawsuits, or capacity additions and alliance formation.

3 The origins of Bain's discussion, however, can be traced to Chamberlin (1933) who discovered that entries of new firms had asymmetrical effects on the existing base of competitors: "..., if high average profits lead new competitors to invade the general field, the markets of different established producers cannot be wrested from them with equal facility" (p.82). Chamberlin's view, which revolutionised traditional oligopoly theory, was later systematised by Bain who discussed how incumbent firms can take advantage of certain structural factors in the industry and, therefore, are able to reap profits from incumbency (Gilbert 1989a).

4 For a recent review of the entry-deterrence logic in a strategy context, please refer to Gruca and Sudharshan (1995).

5 Heterogeneity refers in this context not only to the specific industry domains but also to different cultural environments. The studies by Smiley (1988), Bunch and Smiley (1992) and Singh, Utton and Waterson (1991a&b), for example, have been conducted in the U.S. and in the U.K., respectively, but arrive at very similar conclusions.