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ABSTRACT

We show that resources possess a dual, and opposing, role in influencing competitive responsiveness. On the hand, resources enhance decision-makers' belief that they are able to respond effectively to competitive attacks, but the presence of resources also makes them less motivated to respond. We demonstrate the key role competitor orientation plays in this process and formulate managerial implications from that.

Keywords: new product introductions, competitive reaction, managerial assessment

INTRODUCTION

Firms constantly launch new products and react to their competitors' new product introductions. Reactions to competitors are not only prevalent in practice; they also are necessary. Several recent studies show that companies should be alert when challenged by competitive actions in order to protect and develop a solid market position (Ferrier, Smith and Grimm, 1999). Firms that remain competitively aggressive and react to their competitors' actions stand a better chance of surviving the competitive battlefield. Given the positive effect of competitive responsiveness, a growing body of research explores whether and when companies react to competitive actions (e.g. Kuester, Homburg and Robertson, 1999; Shankar, 1999).

A firm's resource base can be a key instrument to defend against competitive attacks. Resources are tangible and intangible assets available to a firm to conceive and carry out market actions (Wernerfelt, 1984). This definition highlights the distinction between the presence of resources and their utilization in market actions. The possession of resources in itself may not constitute a distinctive advantage. They play an important role, but cannot in themselves produce results. To that end, resource deployment is critical (Dierickx and Cool, 1989; Slotegraaf, Moorman and Inman, 2003). Understanding when and how resources are mobilized to enable effective competitive responsiveness in the context of new product introduction is therefore an issue of high importance.

In this paper, we ask the question how decision-makers' assessment of resources available for potential utilization affects their competitive responsiveness. We regard competitive responsiveness as the result of a decision-making process. A manager plays a key role in scanning the firm's environment and deciding how to deploy the resources available. At the core of this lie two judgments: (1) the decision which information to attend to and (2) using that information to make an assessment of the firm's environment. We argue that differences in competitive reactions stem from a different assessment of events. We thus claim that managerial assessment is a mediating factor between external events and the organizational response (Barr, 1998; Ginsberg and Venkatraman, 1995; Day and Nedungadi, 1994; Martens and Kambil, 1999). Given the context of competitive action and response that we study, we focus on the extent to which decision-makers emphasize information on competitors in their scanning of the environment, and the effect this has on

their willingness to use resources to respond to competitors' moves. In doing so, we examine the effect of three types of resources: financial resources, marketing resources and technological resources. While it may be common logic to expect that competitors that possess a lot of resources represent formidable opponents, we show that these resources are not necessarily deployed towards competitive responsiveness. We argue that resources have both a positive and negative role. The availability of resources may increase the manager's perceived ability of to react to a competitive new product, but it also reduces its willingness to do so. We show that this negative effect dissipates when decision-makers are competitor-oriented.

ASSESSMENT OF COMPETITIVE NEW PRODUCT INTRODUCTION

We posit that competitive responsiveness follows from a decision maker's assessment of a competitive move. This assessment is an interpretation of a competitor's action and is an individual process that occurs at the time when no particular decision alternatives are developed yet (Dutton and Duncan, 1987; Thomas, Clark and Gioia, 1993). We thus focus on the individual decision-maker as the unit of analysis. Our conceptualization of new product assessment is based on the idea that an assessment of events (such as a new product launch by a competitor) contains two aspects: (1) an assessment of the *urgency* to act upon an event and (2) an assessment of the *feasibility* of dealing with the event. These reflect the *motivation* and the *ability* to respond. This motivation and ability dichotomy is embedded within previous research in marketing strategy and managerial behavior. Research on managerial cognition uses the distinction between issue valence and issue capability to explain resource allocation decisions (Mittal, Ross and Tsiros, 2002). Within the marketing strategy literature, the motivation and ability paradigm has also been used to explain under what conditions a firm reaps returns from an asset (Boulding and Staelin, 1993 & 1995). It is also consistent with the theory of strategic issue diagnosis (Dutton and Duncan, 1987).

The *motivation* to respond stems from the risk the company faces of deteriorating its performance by not responding. In the context of new product introductions, this involves an assessment of the probability that the new product will enjoy success in the market, and of the consequences this may have on the incumbent. *The perceived market impact of a competitor's new product reflects the extent to which the new product is expected to be successful.* Successful products have a significant effect on the marketplace, which induces decision-makers to react (Ginsberg and Venkatraman, 1992). The consequences of a successful new product introduction also depend on whether the new product influences the incumbents' products (Chen and Miller, 1994). *This relates to the perceived centrality of attack, which reflects the extent to which a new product is perceived to be targeted at the company's market.*

The *ability* dimension of new product assessment consists of the decision-maker's inference about the possibility of mounting an effective response. This assessment does not involve a particular course of reaction. Rather, *the perceived ability to react constitutes an overall gross judgment on the possibility of the company to respond* (Dutton and Duncan, 1987). Reaction ability has not assumed an important role in existing empirical research on competitive reaction. However, various results implicitly suggest it plays an important role in determining the competitive reaction. For example, Gatignon, Anderson and Helsen (1989) demonstrated that incumbents react to new entries by employing their most effective marketing instrument, suggesting that the reaction decision is taken with respect to the capabilities of the company. Also, Robinson (1988) found an inverted U-function between scale of entry and reaction. This suggests that a lack of capability to respond to highly threatening new products deters companies to respond. Empirical results also suggest that firms experience a greater difficulty of responding to highly innovative new products, and thus that this capability to respond should be accounted for in order to predict reaction (Gatignon, Robertson and Fein, 1997).

We discussed two components of new product assessment: the ability dimension and the motivation dimension. The first one is concerned with the perceived viability to act. The second one is concerned with the perceived necessity to act and contains two components: (1) whether the new product represents an attack on the incumbent's market and (2) whether it is successful on the market. In the following, we will discuss how these

dimensions affect the way in which resources enhance or mitigate managers' responsiveness to competitive new product introductions.

IMPACT OF FIRM RESOURCES ON RESPONSIVENESS

Resources and the motivation to react

We argue that resources can reduce decision makers' motivation to react to a new product introduction for two reasons. First, the perceived market impact of a competitor's new product may be mitigated as the firm itself has more resources. We refer to this as the "*liability-of-wealth*" hypothesis. Second, firms with extensive access to resources may be stronger competitors than their less resourceful counterparts, thus perceiving less necessity to respond upon competitors' moves. We label this the "*strong-competitor hypothesis*". We will elaborate on both arguments below.

The liability-of-wealth hypothesis.

Resourceful firms represent powerful forces. But, the fact that they possess the means to conquer competitive challenges does not necessarily mean that they do so. While the phenomenon of incumbent inertia has been documented before, its presence has mostly been recognized in the context of radical technological innovation that destroys existing incumbents' capabilities (e.g. Christensen and Bower, 1996; Tripsas and Gavetti, 2000). The "stickiness" of resource endowments implies that companies can get trapped within their current resource base and fail to adapt to innovations (Leonard-Barton, 1992; Teece, Pisano and Shuen, 1997).

This inertia can also be present vis-a-vis incremental innovation. Boulding and Staelin (1993) mention that bountiful resources may create a "fat and happy" syndrome, such that organizations become unaware of important changes in the environment and feel invulnerable to them. In other words, in well-off firms executives believe that no change of strategy is needed and they feel they can ignore changes in their environment (Boeker, 1997). This phenomenon is exacerbated by the delayed decay to the firm's existing resource stock. There is inertia in the effect of external changes on a firm's resource

position. This implies that decision-makers, at first, may experience continued munificence despite competitive attacks. The supply of resources may promote an illusion of invulnerability in the minds of decision-makers (Chandrashekaran et al., 1999). This, in turn, may encourage decision-makers to underestimate the magnitude of a strategic issue. This suggests that firms that have the access to resources to react actually undervalue the impact of a competitive new product introduction. Thus although a competitor may realize that a new product is an attack on their market, they expect it to be of minor impact.

The strong-competitor hypothesis.

An alternative explanation is based on resource advantage theory and claims that resourceful firms rightfully can expect competitors to be less successful in capturing a piece of the market. We label this the strong-competitor hypothesis. It is based on the argument that resourceful firms are more resilient to competitive attacks. When employed effectively, superior resources are the cornerstones of positional advantages (Day and Wensley, 1988). Marketing resources inhibit a successful entry of new products: Strong existing customer and channel relationships, high brand awareness and a strong brand reputation all make it difficult for a new product to establish a strong presence. Firms with higher levels of marketing and technological resources also exhibit higher returns to their market actions (Slotegraaf, Moorman and Inman, 2003). This phenomenon, referred to as “asset mass efficiencies” maintains that the higher the current level of resources or assets, the easier it becomes to add on to it (Dierickx and Cool, 1989). For example, a large existing customer base makes it easier to create awareness for product line extensions. Asset mass efficiencies cause added difficulties for newcomers to catch up: not only do they have to build up resources, but they also face added inefficiencies in comparison to resourceful incumbents. Given this strength that the resourceful firm exerts, one can foresee a limited potential for the competitive new product to make a major impact on the market.

The liability-of-wealth and strong-competitor hypotheses lead to the same hypothesis statement:

> ***H1: The presence of technological, marketing and financial resources has a negative influence on the perceived market impact of a competitor's new product introduction.***

Resources and the ability to react

The presence of financial, marketing and technological resources enables the firm to put them to use in market actions. In the case of a competitive new product introduction, it is important to look at the resources the company possesses concerning product development. The technological capabilities of the company determine the range of possibilities for reaction. Thus, limited *technological resources* pose considerable problems with respect to the ability to react. The presence of technological resources enables the firm to adequately respond. Moreover, the existing stock of technological knowledge already puts the firm in pole position to add to that knowledge and foster further development.

However, a company can use other resources aside from technological resources to react to competitive new products. A company with a strong, established market position could leverage it in fighting back new introductions. Its built-up customer relationships, access to distribution and brand awareness all facilitate an effective response. We thus expect *marketing resources* to contribute positively to the ability to react to a competitive new product.

The existence of *financial resources* also creates leeway to react to competitive actions because of the high degree of discretion associated with it. Excess financial resources can readily be deployed to adapt to unforeseen developments in the environment (Nohria and Gulati, 1996, Mishina et al., 2004).

We thus hypothesize that:

H2: The presence of technological, marketing and financial resources has a positive influence on the perceived ability to react to a competitor's new product introduction.

COMPETITOR ORIENTATION

Any assessment of events within a decision-maker's environment involves a trade-off regarding which data to attend to. The extent to which competitive moves will be part of such assessment depends upon the competitor orientation of the decision-maker as it reflects the relative importance attached to activities that concern competitor information and analysis (Gatignon and Xuereb, 1997; Narver and Slater, 1990). We thus define competitor orientation as a scanning selection task (Garg, Walters and Priem, 2003). Whereas competitive responsiveness implies the implementation of actions intended to counteract competitors' actions, competitor orientation only implies that effort is spent on analyzing competitors' moves. Competitor orientation thus channels attention towards competitors. It instills in decision-makers a greater vigilance to competitors' moves. Through the enactment of competitive issues, competitor's actions receive saliency.

Competitor oriented managers will interpret competitor moves, such as new product introductions, in light of their competitive intelligence. This knowledge will be utilized in their assessment whether resources should be deployed in response to competitive action. In turn, this evaluation will determine whether responsive competitive action is called for (Ocasio, 1997). Competitor orientation, therefore, can be expected to affect managers' motivation to respond to competitor action based upon their resource base.

To discern between the two competing rationales for the existence of a negative effect of resources on the expected market impact of a competitive new product introduction, we hypothesize on the moderating effect of competitor orientation on both. Under the liability-of-wealth hypothesis, we posited that decision-makers in resourceful firms attach less importance and urgency to competitors' actions, and underestimate their effect. Given the attention-channeling and enactment effects of competitor orientation, a higher competitor orientation is expected to attenuate this effect. Competitor orientation

therefore should reduce the negative effect of the amount of resources available on the expected market impact of a competitive new product introduction.

H3a: Competitor orientation has a positive moderating effect on the negative influence of technological, marketing and financial resources on the perceived market impact of a competitor's new product introduction.

Under the strong-competitor hypothesis, we posited that decision-makers in resourceful firms expect competitive new products to have a smaller market impact because their existing resource position increases the difficulty for competitors to launch a new product successfully. High competitor orientation implies a great vigilance to competitors' moves and a willingness to take those moves into account when deploying the firm's resources towards market actions. It also translates into the decision of what resources to develop and how to deploy them. It has been shown that when decision-makers are competitor oriented, the organization will direct processes towards building up and using resources in accordance with it (Sanchez and Heene, 1997). Consequently, we can expect competitor-oriented companies to use their resources to build up a positional advantage that cushions them against competitive attacks. This makes it difficult for competitors to successfully attack. Essentially, their orientation helps competitor-oriented decision-makers to coordinate the allocation and usage of resources effectively in the light of competitors' potential activities. It also ensures that the allocation of resources flows primarily towards enhancing the firm's position towards competitors. Therefore, if the strong-competitor hypothesis holds, competitor orientation should increase the negative effect of resources on the perceived market impact of a competitor's new product.

H3b: Competitor orientation has a negative moderating effect on the negative influence of technological, marketing and financial resources on the perceived market impact of a competitor's new product introduction.

Thus, the moderating effect of competitor orientation on the expected market impact of a competitive new product introduction enables us to distinguish between the liability-of-wealth hypothesis and the strong-competitor hypothesis. *The existence of a positive moderating effect provides support for the liability-of-wealth hypothesis whereas a negative moderating effect provides support for the strong-competitor hypothesis.*

RESEARCH DESIGN

Previous empirical research on the reaction of competitors to new product introductions relied heavily on ex-post facto survey research (Bowman and Gatignon, 1995; Heil and Walters, 1993; MacMillan, McCaffery and Van Wijk, 1985; Robertson, Eliashberg and Rymon, 1995; Robinson, 1988)[1]. . Respondents typically are asked to recall a recent new product introduction. For this study, this would imply that reacting companies are surveyed to report on a competitor's new product introduction and their assessment of that introduction at that time. The collection of data from the reacting companies, however, may cause a serious sampling bias. Availability bias leads respondents to recall major new products launched by key competitors. Another potential problem with this approach is that respondents usually report their assessment of a new product introduction after reaction occurred; or, in other words, at a time when they possess more information about their company's response and the new product's longer-term performance. This creates the potential for hindsight biases. The survey approach also is prone to common method bias (Bagozzi and Yi, 1991). Because of that, the attributes of the new product introduction get confounded with the process of interpretation. However, *interpretation involves giving meaning to an observed, objective event, and is colored by context*. Thus, it is important to differentiate the objective characteristics of a new product introduction (e.g. marketing budget, product characteristics, etc) from its assessment by a decision-maker (e.g. perceived impact).

[1] We limit ourselves here to research on competitive reaction to new products. Other empirical research used secondary data to investigate competitive reaction to promotion and advertising actions (e.g. Steenkamp et al., 2005; Leeflang and Wittink, 1992, 1996, 2001).

Alternatively, managerial assessment of issues has been investigated using an experimental design (Klemz and Gruca, 2001; Mittal, Ross and Tsiros, 2002). With this approach, respondents are subjected to a hypothetical scenario and are asked to provide their assessment of the situation. This approach enables a maximum control over the available information and the manipulated variables. But the experimental task requires respondents to relate to the imaginary situation and to conjecture their assessment in this supposed case. Also, the necessary conciseness of the cover story requires a considerable simplification of the decision setting.

To prevent these problems, this study uses a quasi-experiment with the Markstrat business game as an empirical setting. In essence, this approach relates to the above-discussed experimental designs, using a simulated competitive environment as the hypothetical scenario. The Markstrat simulation is a computer-generated model built on a set of relationships that closely simulate real market phenomena. The Markstrat setting consists of an environment in which 4 to 6 companies compete head-to-head in two different high-tech consumer durable markets. The market contains different consumer segments to which companies can target their products. The business environment created in the game is a highly realistic simulation of actual market conditions and contains both autonomous and induced market developments. The participants must make decisions on strategic marketing issues that cover product development, positioning and brand management. Accurate, computer-generated information about the market is available and includes industry data, company performance data and market research data.

Markstrat has been suggested as an excellent environment to study marketing decisions (Gatignon, 1987). It has been extensively used in the last decade in a wide range of studies (e.g Clark and Montgomery, 1998, 1999; Glazer, Steckel and Winer, 1989, 1990, 1992; Malter and Dickson, 2001). The relatively "simplified" setting of a simulation reduces noise and extraneous influences, hence minimizing systematic error variance. This controlled, quasi-experimental environment is particularly advantageous for investigating interaction terms (McLelland & Judd, 1993). At the same time, the multiple-segment market setting reflects a well-studied and realistic, competitive context.

The data for this study were collected during an advanced marketing strategy MBA course. Fourty-four students registered for the class. Since the Markstrat game covers a hypothetical market, the use of students as subjects is not considered problematic (Glazer, Steckel and Winer, 1989). Managers and students only behave differently if the managers possess actual experience in the market under study. The participants in the business simulation were divided into teams, each representing a company competing in the Markstrat environment. The extensive market information provided by Markstat was handed over to the participants. They were then allowed enough time[2] to conduct an individual analysis of the market environment, the performance of their company and of the new products that had been introduced during the previous period. For each time period, the research team selected one of the new products introduced by a competitor as the *critical incident* that was subjected to evaluation by respondents. They were asked for their assessment of the market environment and the selected competitive new product introduction.

The design of this study offers many advantages. First, it creates the opportunity to measure decision-makers' assessments of new products at the immediate moment they are launched on the market, hence eliminating hindsight bias. Second, the research design also enables the researchers to randomly select critical incidents. This way, it can be guaranteed that the new products represent a true random sample of all new products introduced. This approach contrasts with the often-used method of letting respondents answer a survey about the latest competitive new product introduction. This skews incidents towards visible competitive actions that are directly targeted at the company's market. In order to maximize variability of critical incidents across introducing companies, critical incidents were sampled without replacement (Keppel, 1991), thus guaranteeing that the new products under investigation are not biased towards a particular company. In total, 339 usable questionnaires were collected, providing information on 29 different new product introductions. To test the representativeness of these new products, their characteristics were compared to the characteristics of the other new product introductions. We compared the new products on several aspects—for example invested resources and market

[2] An hour and a half was allotted for this; informal inquiry revealed that respondents thought this was enough time to assess the available information adequately.

performance. No significant differences were found which indicates that the randomly selected new products reflect a representative selection.

Finally, we avoided common-method variance. Within this study, three types of measures are combined: (1) objective measures of the incumbent's resources, (2) objective measures of the new product launch and market characteristics, and (3) self-reported measures of the assessment of the market situation by participants.

MODEL SPECIFICATION

Our primary interest lies in investigating the effect of the firm's resources on the assessment a decision-maker makes about a new product introduced by a competitor. This assessment involves three components: (1) the perceived centrality of attack of the new product, (2) the perceived market impact of the new product and (3) the perceived ability to react to the new product.

Naturally, the assessment that a competitor makes about a new product also depends on the characteristics of the new product launch itself and the market context. Previous research on competitive reaction established the influence of the new product's positioning, marketing investments, and scale of entry on competitive reaction (Bowman and Gatignon, 1995; Gatignon, Robertson and Fein, 1997; Kuester, Homburg and Robertson, 1999; Robinson, 1988; Shankar, 1999). In terms of the market context, market growth and industry concentration were found to be important predictors of competitive reaction (Bowman and Gatignon, 1995; Gatignon, Robertson and Fein, 1997; Kuester, Homburg and Robertson, 1999; Robinson, 1988; Shankar, 1999). Our empirical model contains all of these factors as covariates.

The empirical model we propose is:

$$TAR_{it} = \beta_{10i} + \beta_{11it} FRESS_{it} + \beta_{12it} MRESS_{it} + \beta_{13it} TRESS_{it} + \beta_{14} CO_{it} + \sum_{j=1}^{2} \beta_{15j} MCHAR_{it} + \sum_{k=1}^{4} \beta_{16k} NPCHAR_{it} + \varepsilon_{1it} \quad (1)$$

$$IMP_{it} = \beta_{20i} + \beta_{21it} FRESS_{it} + \beta_{22it} MRESS_{it} + \beta_{23it} TRESS_{it} + \beta_{24} CO_{it} + \sum_{j=1}^{2} \beta_{25j} MCHAR_{it} + \sum_{k=1}^{4} \beta_{26k} NPCHAR_{it} + \varepsilon_{2it} \quad (2)$$

$$FEA_{it} = \beta_{30i} + \beta_{31it} FRESS_{it} + \beta_{32it} MRESS_{it} + \beta_{33it} TRESS_{it} + \beta_{34} CO_{it} + \sum_{j=1}^{2} \beta_{35j} MCHAR_{it} + \sum_{k=1}^{4} \beta_{36k} NPCHAR_{it} + \varepsilon_{3it} \quad (3)$$

$$REACT_{it} = \beta_{40i} + \beta_{41} TAR_{it} + \beta_{42} IMP_{it} + \beta_{43} FEA_{it} + \varepsilon_{4it} \quad (4)$$

$$\forall l = 1,...,3; \forall m = 1,...,3; \beta_{lmit} = \alpha_{lm} + \gamma_{lm} CO_{it} \quad (a)$$

$$\forall l = 1,...,4; \beta_{l0i} \sim N(\alpha_{l0}, \sigma_{l0}^2); \varepsilon_{lit} \sim N(0, \sigma_l^2) \quad (b)$$

i = respondent index

t = time

TAR = perceived centrality of attack

IMP = perceived market impact

FEA = perceived feasibility to react

REACT = propensity to react

FRESS = financial resources

MRESS = marketing resources

TRESS = technological resources

CO = competitor orientation

NPCHAR = vector of new product launch characteristics (product positioning, advertising expenditures, sales expenditures, scale of entry)

MCHAR = vector of market characteristics (market growth and market concentration)

Although we do not formulate specific hypotheses for the role of competitor orientation on the relationship between the firm's resources and the perceived centrality of attack and the perceived feasibility to respond, we do include the main and interaction terms to generalize equations (1)-(3). We will empirically test for the existence of these interaction effects.

The model is recursive and the four equations (1)-(4) can be estimated separately (Greene, 2000). The dataset contains multiple observations provided by each respondent (corresponding to different new product introductions by a competitor) and thus has panel data characteristics. In contrast to pure cross-sectional data, this provides the advantage that we can control for respondent-specific omitted variables, while incorporating the dependence between observations from the same respondent. We statistically tested for the need for a fixed or random intercept term. Hausman tests showed that a random effects model is both efficient and consistent (Hsiao, 2003).

MEASURES

Validated measurement scales were not available for the new product assessment constructs. We undertook an extensive literature research in the domain of competitive reaction, organizational change and strategic change. In order to develop an initial pool of items, 16 exploratory interviews were organized within four firms. The companies varied in terms of the technological intensity and growth of their industry. The respondents were all involved with the business unit's marketing strategy. A pilot interview enabled us to identify a critical incident (i.e. a new product launched by a competitor) that was used as a platform for the subsequent interviews with the members of the decision team involved in the decision concerning reaction to this new product. Interviews typically lasted 2 hours and covered the introduction of the competing new product comprehensively.

On the basis of the interviews and the literature review, we developed scales that could be used within the context of Markstrat. The resulting scales were pretested with 16 expert judges who were knowledgeable about the Markstrat business simulation[3].

[3] The 16 expert judges were not part of the exploratory interview round

Table 1 contains an overview of the measures that were used to estimate the hypothesized model. Appendix 1 contains the complete scales for the self-reported measures. Competitor orientation is measured on an individual level and indicates the amount of attention the respondent chooses to allocate to activities related to competitor analysis. To avoid a halo-effect, increase variability, and force respondents to make trade-offs, the measure for competitor orientation originates from a ranking of information-gathering and analysis activities on competitors versus customers. Aside from the self-reported new product assessment and competitor orientation constructs, all other constructs were measured using observable measures that are part of the output of the Markstrat simulation. The financial resources of the company are measured as the available budget to spend. The marketing resources of the company are measured as the relative brand awareness of the product most closely positioned to the newly launched product. The technological resources of the company were measured as the difference in product characteristics between the new competitive product and the most similar product the firm is currently capable of producing[4]. This difference was defined as the Euclidean distance between products on the five product characteristics, taking into account the range of each characteristic. This figure is reversed to represent a proximity[5]. Product positioning describes the positioning of the new product and is operationalized as follows: it represents the smallest distance within the consumer perceptual mapping between the new product and any of the incumbent company's products. The negative of this number is used so that the product positioning represents the proximity of the new product to one of the company's products. The level of advertising and sales resources invested in the new product introduction represents the magnitude of resources invested in the new product. To avoid time and context effects, marketing effort is operationalized as an index, indicating the advertising or sales expenditures for the new product compared to the market average across all products in that period. The scale of entry of the new product is measured as the unit market share it attains immediately after its launch. The market growth is measured as

[4] Within Markstrat, a firm's R&D efficiencies are influenced by its previous experience in developing similar products. Our measure of technological resources thus not only reflects whether the firm is capable of producing a product that shows a high resemblance to the newly introduced product but also how cost-efficient the firm would be able to develop an equivalent product.

[5] The data for financial resources, marketing resources, technological resources and competitor orientation were standardized. There was no significant correlation between main and interaction terms.

the percentage growth in unit sales of the market in which the new product is introduced. Industry concentration is measured by using the Herfindahl Index (the sum of the squared market shares of all competitors on the market).

Insert Table 1 About Here

The multiple-item scales were validated with confirmatory factor analysis, taking into account the multilevel nature of the dataset. The estimation procedure is based on a decomposition of the data into within- and between-level data (Muthen, 1994; Kaplan and Elliott, 1997; Kaplan, 2000). The intra-class correlations range from 0.030 to 0.279, indicating that it is worthwhile to pursue a multilevel model to obtain unbiased parameter estimates (Heck and Thomas, 2000). The pooled within-individual covariance matrix and the between-individual covariance matrix that provide the input for the multilevel confirmatory factor analysis estimation were calculated with the software program SPLIT2 (Hox, 1995). The covariance structure model was estimated with LISREL 8.3. The constructs were tested for unidimensionality, within-method convergent validity, reliability and discriminant validity, with satisfactory results (Fornell and Larcker, 1981; Gerbing and Anderson, 1988; Steenkamp and Van Trijp, 1991). Details are given in Appendix 2. The multi-level confirmatory factor analysis has a satisfactory fit ($\chi^2(48) = 90.54$; RMSEA = 0.076; GFI = 0.95).

Because of its importance as the ultimate dependent variable of the model, the construct validity of the "propensity to react" construct was investigated further. Validity can be demonstrated by comparing a measure to an external criterion that is believed to measure the attribute under study (Kerlinger and Lee, 2000). The reaction measure used in this study is an attitudinal measure that assesses the intention of a decision-maker to react to a competitive new product introduction. Naturally, its relationship to actual reaction behavior is critical in establishing its validity as a measure of competitive reaction. Therefore, we constructed a behavioral reaction measure and correlated it to the attitudinal reaction measure. To determine this behavioral measure, we look at the firm's marketing actions in the market segment at which the competitive new product is targeted in the period following the new product introduction. The behavioral reaction measure does not

discriminate between different types of reaction. It is defined as a dichotomous measure with a value of '1' if (1) the company increases sales-expenditures, (2) the company increases its advertising expenditures, (3) the company decreases price by over 10%, or (4) the company introduces a new product or changes its current products. The behavioral reaction measure is '0' if none of these things occur. A logistic regression of the behavioral reaction measure on the company-averaged attitudinal reaction measure assesses validity; the logistic regression controls for company-differences with a fixed effect company intercept. The relationship between the attitudinal and behavioral reaction measures was highly significant (parameter estimate = .8656, p=.0008, model likelihood ratio χ^2 = 21.875, df=10, p=.0158). This provides support for the criterion-related validity of the 'propensity to react' measure[6].

RESULTS

Table 2 contains descriptive statistics and correlations between variables. Table 3 contains the estimated model parameters.

Insert Table 2 and 3 about here

From the second-to-last column in Table 3 it can be seen that the new product assessment elements all have a strongly significant and positive effect on the propensity to react. Given these results, the motivation and ability dimensions we define as the main components of the assessment of competitive actions are confirmed as important antecedents explaining reaction behavior. In our model specification, we put new product assessment in a central role between the propensity to react and the reaction antecedents (i.e. the new product launch, reacting firm and market characteristics). The last column of Table 3 shows that the effect of the new product assessment components holds when we include the antecedents directly, confirming its mediating role (Baron and Kenny, 1986).

[6] We use the attitudinal 'propensity to react' measure in the subsequent analysis because this individual-level continuous measure fits the individual-level unit of analysis of the new product assessment construct.

By investigating the influence of a firm's resources on each of the components of new product assessment, we gain insight into their effect on competitive reaction. We argued that we expect counter-acting effects: a positive effect on the perceived feasibility to react, but a negative effect on the perceived market impact of the competitive new product. These two effects, establishing resources as both enablers and inhibitors of competitive responsiveness, are supported by the results. The presence of financial and marketing resources create a perception of ability to respond to the competitor's challenge. However, *those same resources also reduce the perception that the new product has a significant impact on the market, which reduces the motivation to react*. Technological resources have no significant effect on either component of new product assessment. Although we did not formally hypothesize an effect of a firm's resources on the perceived centrality of attack of a new product, we did find a significant positive effect of financial and marketing resources. This result may indicate that decision-makers in resourceful firms feel that new product entries in their market segments are a direct attack on their position, more so than less resourceful firms perceive this to be the case.

We posited two alternative explanations for the result that the presence of resources decreases the perceived market impact of a new product. The liability-of-wealth hypothesis claims that decision-makers in resourceful firms underestimate competitors, whereas the strong-competitor hypothesis states that the strength of a resourceful firm makes it difficult for competitors to make significant inroads onto the market. We distinguish between these two alternative hypotheses by investigating the moderating effect of competitor orientation. We find a significant positive interaction effect of competitor orientation and marketing and financial resources on the perceived market impact of a competitor's new product introduction; we find that a strong competitor orientation reduces the liability-of-wealth effect, supporting Hypothesis 3a. Further inspection of the AIC of each model reveals that the best models explaining the perceived centrality of attack and the perceived ability to react are the models without competitor orientation. However, for the model with the perceived market impact of the new product as the dependent variable, the AIC decreases with the addition of competitor orientation.

To further explore the effect of competitor orientation on competitive responsiveness, we investigated the net effect resources have on the propensity to react, through their impact on new product assessment. Figures (1)-(3) display the impact of financial, marketing and technological resources on the propensity to react, under different conditions of competitor orientation. Figure 1 shows that due to the liability-of-wealth effect, the presence of financial resources only increases the propensity to react under conditions of high competitor orientation. In the absence of a competitor orientation, financial resources lead to a lower likelihood of reaction. This situation is different for marketing resources. Despite the negative effect on the perceived impact of the new product, the positive effect on the perceived centrality of attack and feasibility to respond leads to an overall positive effect of marketing resources on the propensity to react.

The covariate effects generally are in the expected direction and correspond with previous research. The closer a new product is positioned to the incumbent, the more it is perceived as an attack. However, decision-makers also feel it is possible to react and that the new product has less of an impact on the market when it closely resembles their existing product. This finding may be explained as the difficulty an imitative new product faces in carving out a significant market share against an established competitor. As can be expected, a new product--supported by a great deal of resources, and with a large-scale entry--is perceived to be threatening. It is perceived as a targeted attack, with a significant impact on the market. Surprisingly, the scale of entry positively influences reaction feasibility. This may be due to a confounding effect with market growth. The scale of entry is higher in a growing market (Correlation=. 48), a condition under which firms feel more capable to respond. Market growth has a significant positive impact on the perceived feasibility to respond; this is probably due to the positive return firms receive in growing markets. Also, in a growing market, new products are perceived to have less impact. The high level of change and competitive action that a growing market attracts may serve to explain this. Consequently, individual actions experience a smaller and more short-lived impact in the turmoil of the growing market. Industry concentration has a negative effect on the perceived feasibility to react. This is in line with previous research that found that response times are higher in concentrated markets (Kuester, Homburg and Robertson, 1999).

Insert Figures 1 tot 3 about here

DISCUSSION

Our results add insight into how decision-makers evaluate competitors' new products. Although it has been acknowledged that products that pose a greater threat are more likely reacted to, little is known about this threat assessment process (Klemz and Gruca, 2001). We add to the existing knowledge by investigating both the content and the influencing factors of new product assessment. Using different sources for the new product assessment measures and its antecedents eliminates common-method bias. We also add a perspective on the capability of the company to respond.

This paper fits within current research in marketing strategy inspired by the resource-based view. In particular, we focus on the deployment of resources towards reaction to competitor's actions. We show that contrary to what ordinarily would be expected, having more resources does not unequivocally make decision–makers take a more active stance against competitors. Because we distinguish between the motivation and ability to react, we are able to show the opposite effect of resources on these two determinants of competitive responsiveness. On the one hand, decision-makers in resourceful companies feel more able to mount a response. On the other hand, they underestimate the potential of the competitive new product, and are therefore less motivated to react. This complacency, which is apparently induced by the munificence of resources, can be exceptionally costly. Previous research showed that challengers often dethrone market leaders because they remain too passive to their competitors' actions (Ferrier, Smith and Grimm, 1999). The results presented in this study confirm and explain this phenomenon.

We show that the availability of financial and marketing resources leads decision-makers to underestimate the market impact of a competitor's new product. The moderating effect of competitor orientation suggests that complacency is to blame for this phenomenon. Consequently, firms need to actively manage perceptions of competitive actions by channeling attention towards competitor's actions. Our results demonstrate that successful companies should take explicit action to boost competitive vigilance and to enhance the perceived urgency to respond to competitive moves.

Also, the different effect of marketing and financial resources creates a dilemma concerning which resources should gain priority to grow. We find that the total effect of marketing resources on competitive responsiveness is positive (Figure 2) whereas financial resources have a negative effect unless competitor orientation is high. An implication of this finding is that to foster competitive responsiveness, the available financial resources should be converted into marketing resources. However, financial resources possess the advantage of low asset specificity. They can be deployed in different ways, increasing the flexibility to respond to competitive attacks. This is evidenced by our results. Financial resources have a bigger effect on the perceived ability to react than marketing resources. On the other hand, when resources are tied up in marketing resources, competitive attacks can be identified more clearly as being targeted at deteriorating these resources. However, the scope of potential reactions utilizing these resources is more limited. Fostering a competitor-oriented culture and a balance between financial and marketing resources enable competitive responsiveness, while maintaining flexibility.

Given the setting of this study, the significant inertia-creating effect of resources can only be expected to magnify in a real managerial setting. Indeed, the context of a simulation provides the decision-makers with a comprehensive set of structured market information, which makes it easier to assess external developments. In absence of this information, it is much harder to obtain reliable data on the market and on the competitive behavior. Real management decisions often have to be based on unstructured information, subject to varying degrees of uncertainty and reliability. The absence of reliable information about the environment urges decision-makers to turn inwardly even more and rely on the available internal information (Glazer, Steckel and Winer, 1992; Montgomery et al., 2005). Our results highlight the potential hazard of doing so.

LIMITATIONS AND DIRECTIONS FOR FURTHER STUDY

The above-discussed contributions notwithstanding, our study has certain limitations. This study presents an initial attempt to define and measure the concept of new product assessment, which involved the development of new measurement scales. Although we took great care to extensively test the measures, replication of the findings in other conditions or with new data could help to further validate the measurement scales.

The methodology chosen has many advantages, as outlined above, but also carries certain limitations that should be warranted. First, we used a simulated environment to assess the reaction decision process. Research should determine whether the findings hold equally well in reality. The simulated environment means that participants have to rely more on the formal information provided, and less on their own intuition and experience about the market. However, there exists a long and rich research tradition for using Markstrat to study managerial decisions. Managers testify of the game's resemblance to their actual business environment and claim that decisions taken do not differ from what would be done in a real-life setting (Kinnear and Klammer, 1987). Second, the use of MBA students as respondents is a limitation of this study. Because of the training they have received, they may be more inclined to extensively use and analyze market data. By upholding a fixed time span to investigate the market data, as we did in the applied research design, we sought to mimic the time-pressure that managers face in reality.

The experimental conditions offered within Markstrat also hold certain restrictions. The competitive environment is not subject to abrupt changes. The number of competitors remains stable, without new entering or exiting companies. New entrants to the market thus do not launch the new product introductions. It would be interesting to explore whether new products coming from new entrants are assessed differently than new products coming from existing competitors. Also, the sample of new product introductions that are investigated does not include radical innovations. Radical innovations are not a clear-cut attack towards the existing market of the competitor, but represent a new, potentially successful track on the borderline of the existing market. The effect of radical innovations on competition cannot be easily addressed in terms of "threat", which is the case for incrementally new products launched into an established market. Therefore, the conclusions

that arise from existing research on reaction to new product introductions may not hold for radical innovations.

Another limitation arises from our choice of the individual decision-maker as the unit of analysis. This implicitly assumes that the individual decision-maker's assessment extends to the behavior of the organization and ignores the collective decision-making process within the decision-making unit. It disregards the importance of inter-organizational power structures in explaining the behavior of organizations. An interesting research question would be to study whether new product assessment at the level of the individual decision-maker aggregates to the organizational assessment or whether assessment at the individual level is a reflection of group-level processes.

Within the boundaries of the conceptual framework presented in this study, the empirical model can be extended in multiple ways. The selected drivers for new product reaction cannot predict reactions exhaustively. Additional research should identify other factors involved in determining the assessment of a competitive new product introduction. In particular, it would be interesting to further investigate causes of competitive inertia and the role that different resources play.

CONCLUSION

This study shows that resources indeed can be considered to be a double-edged sword, both stimulating and inhibiting competitive responsiveness at the same time. By incorporating managerial assessment of competitive moves, this paper provides more insight into the processes underlying these opposing powers and their effect of reaction behavior. As such, we found that competitor orientation can be an important factor in overcoming resource-induced inertia. Hopefully, the perspective on competitive reaction behavior taken in this paper helps to stimulate future research in this area

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APPENDIX 1

Self-Reported Multiple Item Measures

Propensity to react *(7-point scale; Cronbach Alpha = .84)*

Act 1 Our company has to act in response to the introduction of X

Act2 We must quickly do something against X

Perceived centrality of attack *(7-point scale; Cronbach Alpha = .89)*

Tar1 X focuses on segments that are important to us

Tar2 X is a direct attack to our market

Tar3 X can perfectly co-exist besides our products (reversed)

Perceived market impact *(7-point scale; Cronbach Alpha = .73)*

Imp1 X is very important to company Y

Imp2 X will be a success

Imp3 X enjoys a jump-start on the market

Perceived ability to react *(7-point scale; Cronbach Alpha = .84)*

Fea1 We are strong enough to dealwith X

Fea2 If we wanted to do so, a countermove against X is immediately possible

Fea3 It is impossible to battle X (reversed)

Fea4 We do not have the necessary flexibility to react (reversed)

Competitor orientation is measured as part of a ranking exercise, indicating the amount of attention that should be devoted to:

co1 Estimation of the evolution of the market segments

co2 Analysis of the strategy and resources of competitors

co3 Analysis of customer needs to specify new products

co4 Benchmarking products and marketing mix to competitors

co5 Systematic analysis of market research to understand customer needs

co6 Conjecture on competitors' next moves

Competitor orientation is operationalized as the sum of items co2, co4 and co6, all of which reflect attention spent on information about competitors.

APPENDIX 2

Measurement Model for Self-Reported Multiple Item Measures

Test of normality assumption

The data were tested on the assumption of multivariate normality. The test showed no violation of this assumption, although some items showed a relatively high skewness or kurtosis value. However, maximum likelihood estimates are robust against moderate violations of the multivariate normality assumption if the sample size is greater than 100, which is the case (Steenkamp and Van Trijp, 1991).

Unidimensionality

Unidimensionality reflects the extent to which a single trait or construct underlies a set of measures. The overall fit of the confirmatory factor analysis model provides enough information to determine whether unidimensionality is satisfied (Gerbing and Anderson, 1988; Steenkamp en Van Trijp, 1991). The χ^2 statistic tends to be sensitive for large sample sizes, so we will focus primarily on the goodness-of-fit measures to assess model fit (Steenkamp and Van Trijp, 1991). The goodness-of-fit measures are: $\chi^2(48) = 90.54$; RMSEA = 0.076; GFI = 0.95. The parsimonious fit measure χ^2/df is below the recommended threshold of 2.0 (1.89) and the root mean square error of approximation is below the recommended 0.08 level (0.076). Given the adequacy of the goodness of fit indices, no respecifications were made.

Convergent validity

Convergent validity is satisfied if all factor regression coefficients are statistically significant (provided that the overall fit of the model is satisfactory) and if the correlation between each item and its construct exceeds 0.5 (Steenkamp and Van Trijp, 1991). These conditions are satisfied.

Reliability

The composite reliability of the different constructs was calculated (Gerbing and Anderson, 1988). All of these exceed the minimum level of 0.6.

Discriminant validity

First, none of the 95% confidence intervals around the estimated correlation between latent constructs included 1. To test for discriminant validity, a series of nested confirmatory factor analyses was performed, in which the correlation between a set of two latent variables was set to 1. The subsequent increase in χ^2 was significant in all cases. A more stringent test suggests that the amount of variance extracted for each construct should exceed the squared correlation between them (Fornell and Larcker, 1981). All constructs met this criterion.

TABLE 1

Overview of measures

Construct		Measure	Items	Sample Item
Propensity to React	REACT	Self-reported	Multiple-item	"Our company has to act in response of the introduction of X"
New Product Assessment				
Perceived Centrality of Attack	TAR	Self-reported	Multiple-item	"X is a direct attack on our market"
Perceived Market Impact	IMP	Self-reported	Multiple-item	"X will be a success"
Perceived Ability to React	FEA	Self-reported	Multiple-item	"If we wanted to do so, a countermove against X is immediately possible"
Resources of reacting firm				
Financial Resources	FRESS	Market Data	Single-item	Marketing budget
Marketing resources	MRESS	Market Data	Single-item	Relative brand awareness of the product most closely positioned to the new product
Technological Resources	TRESS	Market Data	Single-item	Proximity in product characteristics
Competitor Orientation	CO	Self-reported	Multiple-item	Amount of attention allocated to competitor analysis
New Product Launch				
Product Positioning	NPPOS	Market Data	Single-item	Proximity within the consumer perceptual mapping between the new product and the most similar product of the incumbent
Advertising investment	NPADV	Market Data	Single-item	Indexed advertising expenses for the new product
Sales Investment	NPSLS	Market Data	Single-item	Indexed sales expenses for the new product
Scale of Entry	NPSCALE	Market Data	Single-item	First-period market share of the new product
Market Characteristics				
Market Growth	MGRO	Market Data	Single-item	Percentage growth in unit sales
Concentration	MCONC	Market Data	Single-item	Sum of squared market shares

TABLE 2

Descriptive statistics and correlation matrix

	TAR	IMP	FEA	FRESS	MRESS	TRESS	CO	NPPOS	NPADV	NPSLS	NPSCALE	MGRO	MCONC
Mean	4.29	3.73	5.27	0	0	0	0	2.34	1.05	0.86	4.51	.14	.27
Sd	1.76	1.32	1.27	1	1	1	1	1.33	.40	.35	4.64	.17	.06
TAR	1												
IMP	.25	1											
FEA	.19	-.19	1										
FRESS	.14	-.11	.29	1									
MRESS	-.07	-.38	.10	-.14	1								
TRESS	.03	.07	-.08	.09	-.07	1							
CO	.08	.04	.06	.13	-.12	.12	1						
NPPOS	.13	-.20	.07	-.13	.051	.04	.01	1					
NPADV	.25	.40	-.05	.06	-.51	.18	.12	-.23	1				
NPSLS	.23	.12	.17	-.12	-.43	.04	.13	-.09	.19	1			
NPSCALE	.31	.39	.09	-.08	-.51	.11	.01	-.28	.50	.47	1		
MGRO	.10	.16	.03	.25	-.24	.17	.16	-.30	.24	.41	.48	1	
MCONC	.16	.04	-.03	.51	-.41	.24	.25	-.09	.23	.37	.25	.54	1

TABLE 3

Results

	Assessment of Competitive New Product Introduction						**Propensity to react**	
	Centrality of attack		**Market impact**		**Ability to react**			
	TAR	**TAR**	**IMP**	**IMP**	**FEA**	**FEA**	**REACT**	**REACT**
TAR							.663***	.616***
IMP							.373***	.324***
FEA							.219***	.238***
FRESS	.211*	.207*	-.215**	-.261***	.521***	.524***		-.272***
FRESS*CO		.195*		.246***		.053		-.033
MRESS	.535***	.508***	-.301***	-.278***	.199**	.188**		.223**
MRESS*CO		-.079		.121*		-.022		.031
TRESS	.109	.111	-.070	-.059	.023	.015		-.073
TRESS*CO		-.105		-.124*		.027		-.094
CO	.016	.011	.053	.062	.080	.084		.083
NPPOS	.400***	.418***	-.187***	-.150**	.178***	.178***		-.061
NPADV	1.150***	1.236***	.583***	.706***	.021	.026		.303
NPSLS	.538	.598*	-.035	.027	.095	.112		-.019
NPSCALE	.130***	.128***	.069***	.069***	.045**	.045**		.064***
MGRO	.048	.135	-1.459***	-1.445***	1.556***	1.543***		-.976**
MCONC	1.500	1.227	.776	1.393	-6.669***	-6.772***		2.430
α_0	2.576***	2.518***	2.375***	2.108***	6.979***	6.975***	-1.187***	-1.831***
σ^2_0	.101	.149	.114	.083	.120	.210	.031	.028
σ^2	2.305	2.243	1.174	1.141	1.012	1.015	1.158	1.079
AIC	1182.7	1184.9	997.3	992.1	972.9	982.7	952.6	923.9

*: p<.1; **: p<.05; ***p<.01

FIGURE 1

Effect of financial resources on the propensity to react

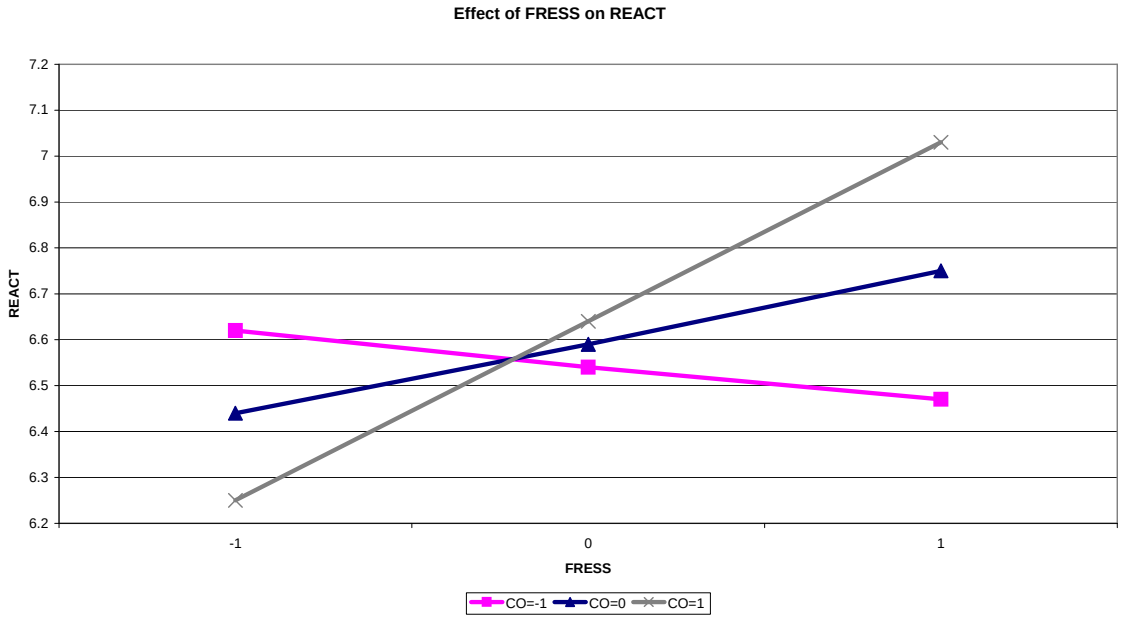

FIGURE 2

Effect of marketing resources on the propensity to react

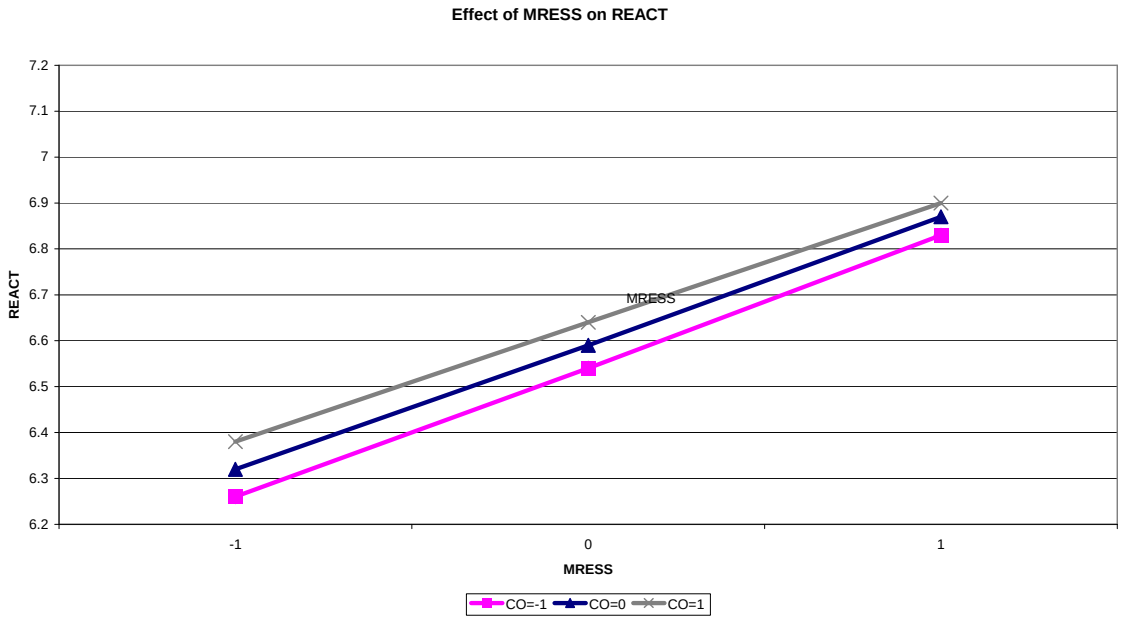

FIGURE 3

Effect of technological resources on the propensity to react