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COMPETITOR ANALYSIS AND INTERFIRM RIVALRY: TOWARD A THEORETICAL INTEGRATION

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This article bridges two important subjects in strategy: competitor analysis and interfirm rivalry. Through a refined conceptualization of competitor analysis, the article introduces two firm-specific, theory-based constructs: market commonality, developed from the literature on multiple-point competition, and resource similarity, derived from the resource-based theory of the firm. The joint consideration of these two constructs shows the complementarity of these two prominent but contrasting strategy theories. Each firm has a unique market profile and strategic resource endowment, and a pair-wise comparison with a given competitor along these two dimensions will help to illuminate the prebattle competitive tension between these two firms and to predict how a focal firm may interact with each of its competitors. The idea of competitive asymmetry is introduced, that is, the notion that a given pair of firms may not pose an equal degree of threat to each other. To illustrate competitor mapping, measures of these two constructs are proposed, and an example is offered. The article ends with a number of implications for research and practice.

The study of competitor analysis (Hamel & Prahalad, 1990; Porac & Thomas, 1990; Porter, 1980, 1985; Zajac & Bazerman, 1991) and of interfirm rivalry (Bettis & Weeks, 1987; D'Aveni, 1994; MacMillan, McCaffery, & Van Wijk, 1985; Smith, Grimm, & Gannon, 1992) occupies a central position in strategy. Therefore, a basic understanding of each subject, as well as an integrated comprehension of both, is of paramount importance.

A primary objective of competitor analysis is to understand and predict the rivalry, or interactive market behavior, between firms in their

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quest for a competitive position in an industry (Caves, 1984; Porter, 1980; Scherer & Ross, 1990). Toward this end, researchers have examined factors that influence competitive responses and their ensuing performance implications (Chen, Smith, & Grimm, In press) and patterns of entry into and exit from rivals' markets (Baum & Korn, In press). However, researchers have made limited effort to investigate the prebattle competitive relationship between rivals and the extent to which it may predict rivalrous behavior in the market. This omission is due partly to the restricted conceptual treatment of competitor analysis, which has not fully incorporated the essential antecedents that affect a firm's competitive activity, let alone considered them in an integrated way.

Intensity of rivalry, one of Porter's (1980) well-known five forces driving competition, has remained mainly a theoretical construct confined to the industry level. In terms of analyzing firms competing in an industry, the strategic-group approach (Barney & Hoskisson, 1990; McGee & Thomas, 1986) is by far the most popular and relevant. However, researchers who use this approach have largely ignored the market context in which competitors carry on their battles and the extent to which two firms actually compete directly against each other. Although the marketing literature recognizes the importance of the market context, its contribution has been primarily in analyzing competitors and competition at the brand or individual-market level (Weitz, 1985), rather than at the firm level. Other approaches usually represent a high degree of abstraction and rely primarily on managers' or researchers' subjective perceptions, which often are too remote to be linked to competitive behaviors in the market (Zahra & Chaples, 1993).

Thus far, some of the most fundamental questions in competitor analysis have remained unexplored (Gatignon, 1984; Weitz, 1985). For example, how can researchers studying competition differentiate among players in an industry to explain each player's market behaviors? How can a firm, before launching an attack, assess its prebattle relationship with a given rival and the resultant likelihood that this rival would retaliate? How can a firm gauge which opponent is most likely to attack its markets? How can strategists differentiate among a set of competitors to allow the firm to allocate appropriate resources and attention to each? Finally, although the importance of competitor analysis and interfirm rivalry is well recognized, there has been no systematic attempt to integrate the two topics.

This article seeks to provide a conceptual link by proposing two firm-specific, theory-based constructs: the market commonality and the resource similarity between a given pair of competitors. Taking the firm as the basis for analysis, I argue that each firm has a unique market profile and resource endowment and that a comparison with a given competitor along these two dimensions will help to illuminate the competitive relationship between them and to predict how they may attack (or respond to) each other in the market. This firm-specific conceptualization also leads

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to the idea of competitive asymmetry, the notion that a given pair of firms may not pose an equal threat to each other. I first offer a number of propositions that use market commonality and resource similarity to predict competitive attack and response. I also propose measures to assess market commonality and resource similarity along with a demonstration of how such measures could be implemented. The article ends with a number of implications for research and practice.

THEORETICAL BACKGROUND

Competitor Analysis: An Overview

Several streams of research have addressed, directly or indirectly, the question of competitor analysis for firms within an industry. Strategy researchers have drawn extensively from industrial organization (IO) economics (Barney, 1986; Porter, 1980), which holds that firms that exist in the same industry are de facto competitors. This assumption has been challenged by strategic-group literature, whereby authors argue that there are different groups of firms within an industry and that firms are homogeneous within groups, along a set of strategic attributes, and heterogeneous between groups.[1]

The strategic-group approach helps one recognize the significance of strategic posture, which is likely to reveal how a firm may be capable of competing in an industry. From the perspective of predicting rivalry, the exclusive emphasis on homogeneity of strategic posture imposes a constraint. Without examining a firm's strategic attributes in the market(s) where it actually interacts with others, one has little idea against whom it competes directly: Many firms may not be direct or primary competitors because of a different market focus. Two firms will have little motivation to engage each other competitively if they have limited markets in common.

Thus, though most strategic-group theorists do not claim to be identifying "competitors," a point raised explicitly by Hatten and Hatten (1987), this approach is nevertheless frequently applied to competitor analysis, with problematic results. Some studies unquestioningly rely upon the premise that "when a company chooses to enter a specific strategic group, it selects the members of that group as its competitors" (Kotler & Armstrong, 1989: 496). It is not uncommon for firms serving completely different markets yet having similar strategic postures to be grouped and inferred by analysts as direct competitors.

This inattention to the market is unfortunate in light of a vital, yet

[1] In addition to the conventional IO economics-based groups (e.g., Cool & Schendel, 1987; Fiegenbaum & Thomas, 1990; Hatten, Schendel, & Cooper, 1978), recent studies concern the cognitive (Reger & Huff, 1993) and the socio-organizational bases of groups (Anderson & Lawless, 1993; Baum & Singh, 1992), some of which may be more amenable to a direct application for competitor analysis.

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largely ignored, point in early strategic-group literature: "Firms within a [strategic] group resemble one another closely and recognize their mutual dependence more sensitively" (Caves & Porter, 1977: 250). Two firms would surely recognize their interdependence most closely if they competed in the same sets of markets. For the purpose of competitor analysis, the consideration of shared market captures in a very fundamental way the mutual dependence of two firms.

The marketing literature has long emphasized the significance of the market and its competitive implications (Abell, 1980; Day, 1981; Kotler & Armstrong, 1989; Lehmann & Winer, 1990; Weitz, 1985). Competing brands in a market are considered direct competitors and are analyzed accordingly. In addition to proposing such market-level variables as market size and distribution of market share, this emphasis on market-based competition suggests that each market is unique.

Similarly, within the strategy literature, recent multiple-point competition studies (Gimeno, 1994; Karnani & Wernerfelt, 1985; Smith & Wilson, 1995) have highlighted the significance of shared markets in competition.[2] However, as elaborated in the following pages, the notion of shared markets represents only a first step in understanding the competitive relationship between firms. The conceptualization of shared market, or market interdependence, does not take into account the differences among various markets–in terms of importance or magnitude, for instance—and it does not capture the asymmetrical nature of competitive relationships between firms.

More important, the level of analysis of these studies has generally been at the individual market level, not at the firm level (Eliashberg & Chatterjee, 1985; Weitz, 1985). Thus, with a few exceptions such as Abell (1980) and Day (1981), critical issues of primary interest to strategy researchers, such as overall firm strategies and resources, and the resulting implications for rivalry, remain largely unexplored.

With respect to analyzing individual competitors at the firm level, researchers who have adopted a resource-based view (Barney, 1991; Conner, 1994; Peteraf, 1993a) have attempted to differentiate among firms along the firms' strategic or resource endowments. The assumption underlying this literature that each firm is unique implies that competitor analysis is a firm-specific analysis, an idea that has strong implications for this article. Another interesting although unexplored implication of this line of thinking is that relationships between firms are not symmetrical. However, despite its insightful focus on the firm, this line of research has been primarily inward looking and has not yet begun to incorporate in its research domain the market context in which firms

[2] Many economic studies have also been devoted to this topic (e.g., Bernheim and Winston, 1990; Scott, 1982), and Gimeno (1994) has provided a comprehensive review of this research stream. In this article, I focus mainly on strategy studies on the subject.

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compete. As Amit and Schoemaker (1993) and Porter (1991) noted, to be a complete theory, the resource-based perspective must incorporate explicitly the external competitive environment.

Other strategy researchers have devoted substantial efforts to a number of important issues in competitor analysis. Porac and Thomas (1990) argued that each firm will have its own conceptualization of competitors. Consequently, a firm can self-select its rivals for competitor analysis independent of past or even future market encounters. Porter (1980) considered a competitor's response profile. Zajac and Bazerman (1991) introduced the idea of "blind spots" and showed their implications, such as industry overcapacity. Amit, Domowitz, and Fershtman (1988) highlighted the significance of conjecture variations (Bowley, 1924), defined as the degree to which firms are aware of their interdependence and use this awareness in formulating their actions. Ghoshal and Westney (1991) examined competitive analysis systems, Prescott and Smith (1987) studied competitive intelligence, Strebel (1983) performed stock market assessment, and Young (1987) analyzed sources of competitive data.

However, from the point of view of predicting rivalry, the research in general has suffered from several limitations. First, the identity of a firm's competitors is assumed to be known, or competitors are treated as undifferentiated entities. Second, almost all the research is normative or descriptive. The proposed constructs, though conceptually important, are difficult to operationalize for empirical investigation (Zahra & Chaples, 1993). There is almost no recognition of the relational nature of competition and rivalry (Barnett, 1993). Most fundamentally, only a very few researchers (e.g., Smith, Grimm, Gannon, & Chen, 1991; Zajac & Bazerman, 1991) have explicitly addressed the conceptual links between the analysis of competitors and the prediction of their behaviors, which is supposed to be a primary objective of conducting such analysis (Porter, 1980).

A Framework for Competitor Analysis: Market Commonality and Resource Similarity

Competitors are defined here as firms operating in the same industry, offering similar products, and targeting similar customers. The logic underlying this article, similar to that of the resource-based perspective, is that the firm serves as the basis for competitor analysis. A firm will experience different degrees of competitive tension, the extent to which the firm would consider a given competitor as a primary competitor, from each of its competitors because of differences along the market and resource (or strategic) dimensions. To capture the unique nature of each competitive relationship, as reflected in these dimensions, competitor analysis is best carried out as an intraindustry comparison derived from the study of the relationships between pairs of firms. Moreover, any asymmetry between firms can be assessed only by looking from the point of view of a focal firm. Thus, the focus of the analysis is not on understanding groups of firms or individual competitors in isolation, but on

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assessing competitive tension between firms and thus the potential of these two firms for engaging in rivalrous behavior. Such firm-specific, pair-wise analysis of competitors mirrors the fine-grained examination of interfirm rivalry using the action/response dyad (Chen & MacMillan, 1992; Smith et al., 1992) and complements the conventional structural or group approach to understanding competition. Only through this kind of micro-analysis can the subtlety and nuances of competition and rivalry be revealed.

The joint consideration of the strategic and market dimensions is supported in the literature. Harrigan (1979, 1985) argued that an industry is usually composed of many markets and that each market may be served by different strategies. Day (1981), defining markets and competitors, advocated an integrated perspective combining the top-down approach, which specifies markets in terms of strategic capabilities and resource transferabilities, and the bottom-up approach, which emphasizes customer market requirements. Abell (1980: 229, emphasis added) also aptly noted: "It is important . . . to identify not only those competitors *who mirror your particular approach* to the market, but also all the others that *intersect* you in a market but approach the market from a different perspective." Competitor analysis is thus conceptualized as the study of two vital firm-specific factors: market commonality and resource similarity.

The literatures on organizational change, learning, and decision making suggest three essential factors that underlie organizational action: the *awareness* of interfirm relationships and action implications, the *motivation* to act, and the *capability* of taking action (Allison, 1971; Dutton & Jackson, 1987; Kiesler & Sproull, 1982; Lant, Milliken, & Batra, 1992; Schelling, 1960). The focus on the two dimensions of market and resource also points to these three behavioral antecedents: Awareness and motivation are conditioned mainly by market relationship, and capability depends largely on strategic or resource endowments. These three determinants, which have not been considered in an integrated way in previous competitor analysis research, are critical to the prediction of interfirm rivalry (Miller & Chen, 1994).

It is important to note that markets and resources—and, indeed, competition itself—may be defined either as objective phenomena that all firms will consider the same way or as subjective interpretations of reality (Abrahamson & Fombrun, 1994; Fombrun & Zajac, 1987; Porac & Thomas, 1994; Porter, 1980; Reger & Huff, 1993). Although both views are important and may be complementary, this article focuses primarily on the objective view of competition. Similarly, market commonality and resource similarity are treated here as two conceptually distinct, loosely coupled constructs. The relationship between these two constructs—the possible causality between the two or their source in some third construct—is beyond the scope of this article. The focus here is to highlight their significance in competitor analysis and their roles in predicting rivalry.

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Market commonality. The research on multiple-point competition has highlighted the importance of shared markets, and market interdependence more generally, in competition, using the notion of multimarket contact. The degree of multimarket contact between two firms determines whether they are direct and immediate competitors.

Multimarket contact typically is measured by the average number of markets in which a firm competes with all the competitors in a given market, excluding this focal market (Boeker, Goodstein, Stephan, & Murmann, 1994; Gimeno & Woo, 1994). A main focus of this line of research is on testing the effect of multimarket contact on rivalry in a given market. However, as noted by Baum and Korn (In press), most of these studies typically examine variables such as average price charged, firm performance, and market stability, which either relate only indirectly to rivalry or represent the outcome of rivalry rather than rivalry per se. Furthermore, researchers typically treat multimarket contact as an aggregate property of either the firm (e.g., Barnett, 1993) or the market (e.g., Evans & Kessides, 1994), and they generally do not recognize that instances of competitive engagements or of "mutual forbearance" (Edwards, 1955) vary not from market to market or from firm to firm but from relationship to relationship (Baum & Korn, In press).

More fundamentally, despite the literature's focus on multimarket contact, researchers have not fully considered that the intensity of competition would vary in each of the shared markets where two firms compete. From a *competitive* point of view, different markets would have different sets of competitors, and the market power each competitor wields also would vary across these markets (Montgomery, 1985). From a *strategic* point of view, each market would play a different role in each firm's overall market profile (Chen & MacMillan, 1992). In short, each market is unique. Two firms are head-on opponents and will experience great tension if they compete directly in many markets and, more fundamentally, if each is a key player in markets vital to the other.

The notion of market interdependence, as proposed in the literature, by definition implies mutuality and symmetry. However, the market relationship between a pair of firms, as elaborated more fully in the following pages, may not necessarily be symmetrical. The construct of market commonality developed in this article represents a more narrowly defined view of interdependence: it is firm specific, and it is considered from a focal firm's point of view. One advantage of this refinement of the notion of interdependence is its ability to detect the asymmetry that often exists in the market relations between firms.

Market commonality is defined as the degree of presence that a competitor manifests in the markets it overlaps with the focal firm. A given competitor's market commonality with a focal firm is conditioned both by the strategic importance to the focal firm of the shared markets and by that competitor's strength in these shared markets. As noted by Day (1981) and Porac and Thomas (1990), *market* is a complex and multidimensional

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construct, and different definitions are needed for different strategic purposes. To allow generalizability, *market* is broadly defined here to include both product- and customer-based concepts such as geographical market, market segment, or brand (Day 1981). Of course, within any industry, there is generally a commonly agreed-upon notion of market (Abrahamson & Fombrun, 1994).

Resource similarity. The resource-based view of the firm seems particularly useful in differentiating competitors from a strategic point of view (Amit & Schoemaker, 1993; Barney, 1991; Mahoney & Pandian, 1992; Teece, Rumelt, Dosi, & Winter, 1994). The firm is the focal level of analysis in this reemerging strategy theory; the underlying orientation considers a firm as a unique bundle of tangible and intangible resources and capabilities (Penrose, 1959; Wernerfelt, 1984). A basic assumption of the resource-based work is that resource bundles and capabilities are heterogeneously distributed across firms and that each firm is idiosyncratic because of the different resources and assets it has acquired over time and because of the various routines it has developed to manage them (Barney, 1991; Peteraf, 1993a; Teece, Pisano, & Shuen, 1991). A firm's competitive position and advantage in the industry are defined by its unique resource bundle (Conner, 1994; Rumelt, 1984). More important, resource endowments are "sticky" and likely to constrain a firm's strategic choices (Teece et al., 1991). Collis (1991: 51) made this point explicit: "Strategy is constrained by, and dependent on, the current level of resources . . . the firm's asset investments, which in aggregate are the fundamental determinants of its strategic position."

Resource similarity is defined as the extent to which a given competitor possesses strategic endowments comparable, in terms of both type and amount, to those of the focal firm. The understanding of resource similarity is important for competitive advantage because firms with similar resource bundles are likely to have similar strategic capabilities as well as competitive vulnerability in the marketplace. Similarly, firms with divergent resource bundles are likely to have diverse competitive repertoires to draw on because of the unique profiles of their strategic resources.

In summary, the conceptualization of both market commonality and resource similarity as firm-specific constructs developed from an individual firm's perspective is fundamentally rooted in the resource-based theory of the firm. However, in this article I adopt a different perspective arguing that each firm, although unique, differs from others in degrees along a continuum of market commonality and resource similarity. Comparison is not only possible, but it is also necessary for purposes of empirical research. A framework of competitor analysis, based on these two dimensions, is proposed in Figure 1.

Juxtaposing these dimensions yields four quadrants into which a given competitive relationship may fall. Quadrant I illustrates the relationship of a focal firm with a competitor with high resource similarity

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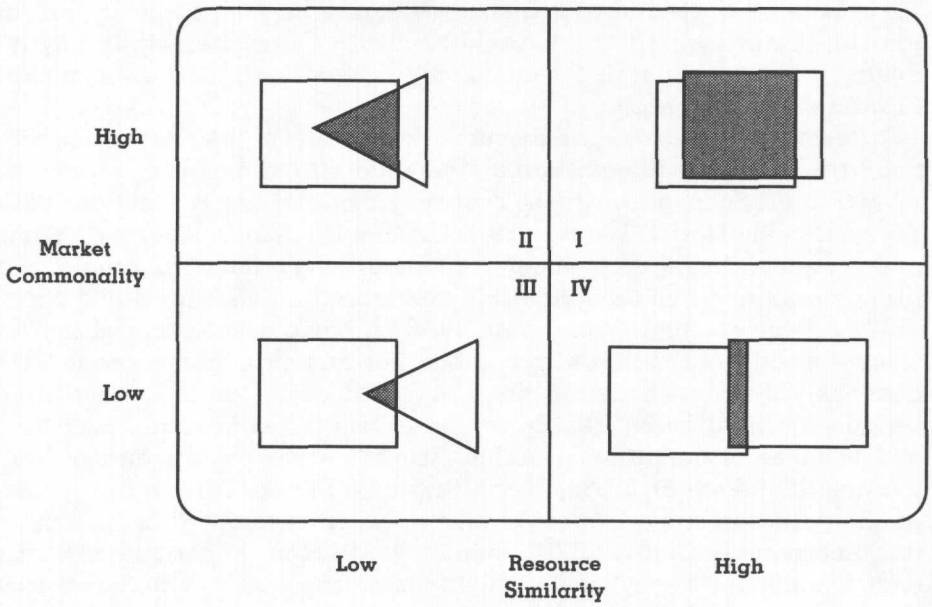
FIGURE 1
A Framework of Competitor Analysis



and high market commonality. The Venn diagram, representing resource similarity by the shapes of figures and market commonality by the degree of intersection between the figures, illustrates this relationship. The construct of market commonality, as outlined previously, captures more than simply shared markets; thus, the figure is meant only to be suggestive of the construct rather than strictly representational. Firms in Quadrant I are similar in shape and have a substantial intersection. They are clearly direct and mutually acknowledged competitors. In contrast, Quadrant IV includes firms having similar resources and competing in very few markets, if any.

Interfirm Rivalry: Competitive Action and Response

Recent investigation of interfirm rivalry has yielded some useful ideas (Baum & Korn, 1994; Chen et al., 1992; MacMillan, McCafferty, & van

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Wijk, 1985; Smith et al., 1992). First, the research recognizes a distinction between the concept of interfirm rivalry, which emphasizes the conduct of individual firms, and the general conceptualization of competition, which focuses on properties of the industry or market structure (Baum & Korn, 1994; Caves, 1984; Hannan & Freeman, 1989; Jacobson, 1992). Second, using the individual competitive move as the unit of analysis, rivalry can be analyzed by studying the exchange of moves and countermoves (Caves, 1984; Porter, 1980; Smith et al., 1992), or the action/response dyad.

The action/response dyad is consequential because it is at this level where competitive engagement occurs (Chen et al., 1992) and where the dynamic nature of strategy and competition and the "mutual interdependence" of firms in an industry are best captured (Porter, 1980: 17). An action (or attack) is defined here as a specific competitive move initiated by a firm, such as introducing a new product or entering a new market, that may lead to the firm's acquiring its rivals' market shares or reducing their anticipated returns (Chen & Hambrick, 1995; Chen & MacMillan, 1992). Similarly, a response (or retaliation) is a specific countermove, prompted by a rival's attack, that a firm takes to defend or improve its share or profit position in the industry.

The importance of competitive attack has been widely acknowledged in such concepts as first-mover advantage (Lieberman & Montgomery, 1988) and competitive initiative (MacMillan, 1982). Underlying such theories is the notion that, in a world of uncertainty, firms count on the success of some competitive actions to secure lasting benefits (Wernerfelt & Karnani, 1987). As MacMillan (1982: 43) noted: "To the extent that strategists can capture and maintain the initiative, their competitors are obliged to respond, thus being forced to take a reactive role rather than a proactive role."

The significance of competitive response lies in the fact that attacks are rarely made with impunity and that the ultimate effectiveness of an action depends largely on defenders' responses (Chen & MacMillan, 1992; Smith et al., 1992). The need for a firm initiating an attack to consider potential responses is particularly crucial in intensely rivalrous situations, in which firms are closely interdependent and in which damaging countermoves can occur very rapidly (D'Aveni, 1994). In such situations, the expectation of retaliation will drive competitive decision making. Thus, a key feature of rivalry is its dynamic and interactive nature (Schelling, 1960; Weigelt & MacMillan, 1988).

Moreover, researchers have shown that actions and responses matter to performance (Chen & Hambrick, 1995): The greater the number of competitive moves a firm initiates, the better its performance (Young, Smith, & Grimm, 1994); attackers and early responders gain market share at the expense of late responders (Chen & MacMillan, 1992); the greater a firm's tendency to respond, the better its performance (Smith et al., 1991); and the more responses a firm's actions provoke, the worse its performance (Chen & Miller, 1994).

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An important research task, then, has been identifying predictors of competitive attack and response. The research so far has focused on predicting response using such factors as the attributes (a) of the attack (Chen, et al., 1992), (b) of the attacker (Chen & MacMillan, 1992), and (c) of the defender (Smith et al., 1991). In contrast, no effort has been made to predict attack, nor has attention been devoted to analyzing the structural context before the launch of an attack or the prebattle relationship between the attacker and a defender. The latent potential for rivalry or structural tension is a most critical factor in explaining the extent to which two firms will mount attacks against each other and why a rival "feels the pressure" (Porter, 1980: 7) to retaliate once an attack is initiated. In my conceptualization of competitor analysis I suggest that rather than treating the attacker and the defender independently, one should take into account the defender's overall market and resource profiles in comparison with those of the attacker in predicting attack and response; that is, a competitor's strengths and weaknesses (Porter, 1980) would be assessed with respect to a particular focal firm. This approach responds directly to the call to consider strategy as a relative construct (Snow & Hambrick, 1980).

PROPOSITIONS: LINKING COMPETITOR ANALYSIS TO INTERFIRM RIVALRY

This section will use the concepts of market commonality and resource similarity to predict the likelihood of attack and the likelihood of response. Underpinning the prediction are three drivers of competitive behavior: *awareness, motivation,* and *capability.* In general, *awareness* is considered a prerequisite for any move, and it is likely to be increased by both market commonality and resource similarity. Market commonality will affect a firm's *motivation* to attack (or respond); resource similarity will influence attack (or response) *capability.* Several streams of literature will be used to show support for these general predictions, mainly multiple-point competition for market commonality and the resource-based theory of the firm for resource similarity. In addition, the idea of competitive asymmetry is introduced, and its implications for rivalry are discussed.

Figure 2 offers a schematic representation of the linkages between competitor analysis and interfirm rivalry. The building blocks of competitor analysis—market commonality and resource similarity—influence the drivers of competitor behavior. These drivers (awareness, motivation, and capability), in turn, influence the likelihood of competitive attack and response. The figure also suggests that interfirm rivalry affects organizational outcomes such as economic performance and changes in market share, although the issue is not specifically addressed in the present article. The figure then reveals a feedback loop as rivalrous moves alter the existing positions in commonality and similarity, thereby setting up a

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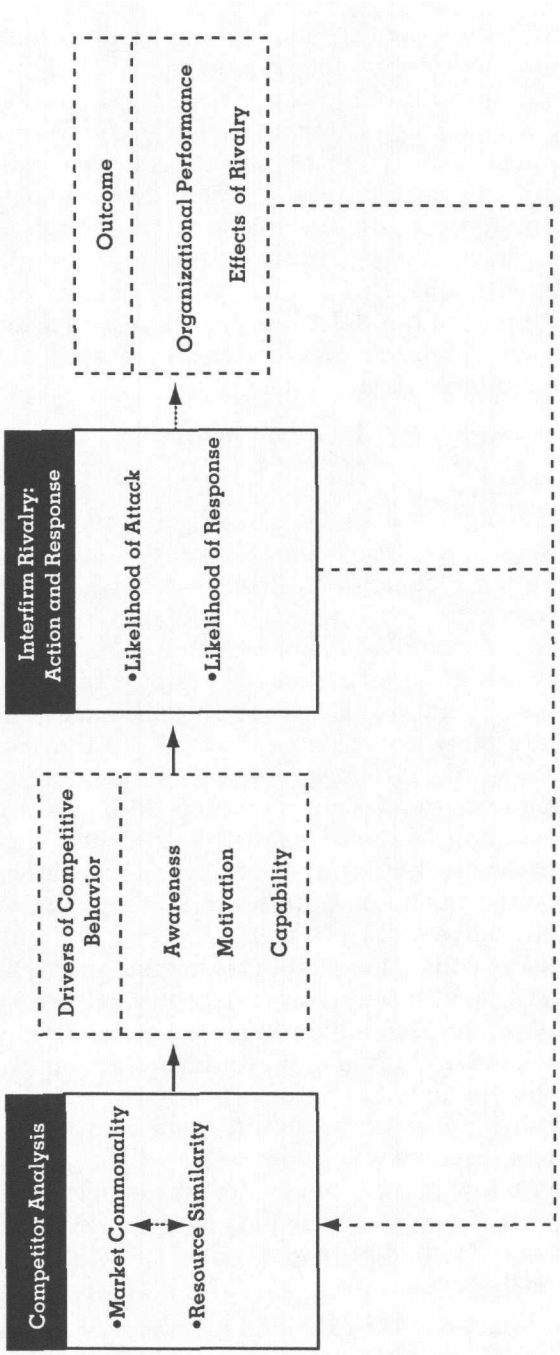
FIGURE 2
An Integrated Framework of Competitor Analysis and Interfirm Rivalry



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new competitive relationship for the next battle. These relationships are elaborated and clarified in the next sections.

Finally, in the following propositions about market commonality, resource similarity is held constant. Similarly, market commonality is held constant in presenting propositions on resource similarity. In addition, multiple-point competition research has identified key market structure variables (e.g., growth and concentration) for control in empirical testing. Research on competitive action and response has shown the significance of the attributes of the attack (e.g., type of action), of the attacker (e.g., commitment), and of the defender (e.g., competitor dependence) in predicting response. These are the factors that must be assumed to be equal in making the following predictions.

Market Commonality and Interfirm Rivalry

Market commonality, which captures the extent to which two firms are in direct competition in the market, is a primary dimension of competitor analysis as well as a driver of rivalry.[3] A major thrust of multiple-point competition research has been in testing the mutual forbearance hypothesis (Edwards, 1955), which argues that competitors interacting in multiple markets would be less motivated to compete aggressively in a market because of their awareness of the possibility of retaliation across various markets (Barnett, 1993; Gimeno, 1994; Ma & Jemison, 1994). Thus, "firms that are close competitors may not be the most intense rivals" (Baum & Korn, In press). (However, this statement does not imply that distant competitors will be strong rivals.) Although empirical testing of this hypothesis has produced conflicting results (Gimeno, 1994), recent refined studies show general support for the rivalry-reducing effects of multimarket contacts (Baum & Korn, 1994; Gimeno & Woo, 1994). Gimeno and Woo (1994) have shown that firms with more multimarket contacts tend to take more conservative stances toward each other, leading to less rivalry, as reflected by relatively higher market prices. Baum and Korn (1994) found that increases in multimarket contact reduce rivals' rates of entry into each other's markets, thus minimizing this particularly aggressive competitive incursion.

Thus, with respect to the initiation of attacks, it appears that an attacker will be less likely to target rivals with high market commonality than those with low market commonality, because the stake involved is very substantial. The risk-averse propensity of decision makers in large-stake situations also has been well noted in the decision-making literature (Bass, 1983).

Proposition 1a: The greater B's market commonality with

[3] It should be noted that there may be factors other than market commonality which affect the degree to which two firms are in direct competition, such as differentiation (Beath & Katsoulacos, 1991; Hotelling, 1929).

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A, the less likely A is to initiate an attack against B, all else being equal.

Consider now a situation in which an attack has been launched, perhaps because an aggressive competitor is attempting to increase market share or to reposition itself. This situation will be discussed from a defender's viewpoint. Adopting this perspective will help identify which defenders are most likely to respond to any given attack.

The behavioral implications of market commonality for response have been noted by Porter (1980: 88): "A central characteristic of competition is that firms are mutually dependent: firms feel the effects of each other's moves and are prone to react to them." Similarly, proponents of the resource-dependence perspective (Pfeffer, 1982, 1987; Pfeffer & Salancik, 1978) also pointed to the significance of market interdependence—an idea related to market commonality—and the general tendency for firms, facing uncertainty about the actions taken by other firms, to react in order to manage interdependencies.

Dutton and Jackson (1987) contended that decision makers are more likely to respond to issues labeled as threats. An attack would no doubt be viewed as threatening by a firm if this attack were initiated by a rival with high market commonality. The finding that response likelihood is positively related to competitor dependence (Chen & MacMillan, 1992), or the extent to which a defender relies for revenues on the markets under attack, further supports the prediction.[4] Finally, the implication of Baum and Korn's (In press) finding that rivals with high multimarket contact are less likely to exit each other's markets is that such rivals are strongly committed to defending their positions and thus cannot be attacked with impunity.

These theories and findings suggest that the firm that has greater market commonality with the initiator of the attack would be more likely to respond.

Proposition 1b: The greater A's market commonality with B, the more likely B is to respond to A's attack, all else being equal.

Resource Similarity and Interfirm Rivalry

The dynamic and iterative nature of competitive rivalry (Amit et al., 1988; Weigelt & MacMillan, 1988) suggests that a defender's potential response is a matter of great concern for an attacker. An attacker may be hesitant to target a rival that seems likely to retaliate. Assuming that all affected competitors would be equally motivated to respond to an attack,

[4] The concept of competitor dependence is action specific, depending upon a given attack once that attack has been launched: Different attacks will affect different competitors, and an attack also will affect each competitor differently, depending on the significance of the markets involved. In contrast, the idea of market commonality captures the preattack relationship between market rivals.

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an initiator contemplating a competitive attack will assess its own capability of acting in comparison with the potential defender's capability of retaliation. Defending firms with strategic endowments comparable to those of the initiator will be the most capable of effective response. Hence, an initiator will think twice about launching an attack against such a rival. In short, a firm's awareness of the resource similarity with a defender and the defender's capability of responding will play a key role in the firm's decision whether to attack.

The prediction that firms are less likely to attack rivals with similar strategic resources is in line with Peteraf's (1993b) finding that rivalry within a strategic group will be less intense than intergroup rivalry.

> *Proposition 2a: The greater B's resource similarity with A, the less likely A is to initiate an attack against B, all else being equal.*

Consider the point of view of a defending firm, assuming that an attack has been launched and that the defending firm has become aware of the attack and is motivated to respond to it. Such a firm's response—determined mainly by response capability—is likely to be conditioned by its degree of resource similarity with the initiator. This argument is developed from the resource-based theory of the firm, whose proponents argue that sustained competitive advantage in the market is rooted in the firm's internal resources and capabilities (Barney, 1991; Conner, 1991; Peteraf, 1993a).

This phenomenon touches on a most fundamental issue in a firm's quest for competitive advantage in the market: the extent to which a competitive move will be imitated by competitors, which are characterized by varying degrees of resource and strategy heterogeneity in comparison to that of the initiator of the move. A number of related ideas and mechanisms have been proposed in the resource-based literature: imperfect imitability and imperfect substitutability (Barney, 1986, 1991; Dierickx & Cool, 1989), barriers to imitation (Reed & DeFillippi, 1990), isolating mechanisms (Rumelt, 1984), and resource position barriers (Wernerfelt, 1984). (The notion of mobility barriers [Caves & Porter, 1977; Hatten & Hatten, 1987] is also relevant here.) Ideally, a firm would like to initiate a competitive challenge that would fully utilize its resource-based advantages—or more specifically, the heterogeneous asset bases (Rumelt, 1984)—in order to prevent competitive imitation (Collis, 1991), or, if impossible, at least to maximize competitors' difficulties in imitation.

In the context of this article, resource heterogeneity or dissimilarity, relating to the initiator, certainly would play a vital role in circumscribing a competitor's ability to respond; resource similarity would have exactly the opposite effect. Empirically, the organizational resources required for response—in terms of both quantity and diversity—have been found significant in the prediction of response: If the response will require substantial resource commitment and major organizational restructuring, rivals are less likely to respond and will respond more slowly (Chen &

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MacMillan, 1992; Chen & Miller, 1994). Therefore, the organizational requirements for response would be more manageable for competitors with resource bases similar to the attacker's than for those with very different ones, all other things being equal.

Furthermore, as often noted in the resource-based work, firm capability extends the notion of intangible resources to include various organizational routines developed by the firm (Collis, 1991; Winter, 1987). In competition, firms would not only be more motivated but also more capable of reacting easily to those kinds of situations that evoke routine responses by drawing from the preprogrammed and preestablished routines that exist inside the firm (Allison, 1971). These preexisting routines are more likely to be available if a move is initiated by a similar firm, from both the strategic and resource points of view. In short, defenders that are most similar to the attacker in their strategic resource endowments will have the greatest potential and capability for retaliation.

> *Proposition 2b: The greater A's resource similarity with B, the more likely B is to respond to A's attack, all else being equal.*

Market Commonality Versus Resource Similarity

Two firms will surely recognize their competitive relationship most clearly if they compete in the same markets and develop comparable market profiles. Market interdependence is the most significant factor affecting conjectural variations and mutual dependence from a competitive point of view (Gimeno & Woo, In press). Firms that have the highest market commonality are the most direct and mutually recognized competitors (although they may not necessarily be the most fierce ones). As discussed above, one of the problems in previous competitive studies in strategy, especially strategic group, is the lack of attention to market relationships or the assumption that they are constant. Instead, the focus has been on strategic or organizational similarity, reflecting only a firm's capability to act rather than its motivation. In a competitive situation, a firm must first be motivated to act or react, regardless of its capability. Motivation is a necessary condition and prerequisite for behavior, and it is a more direct and stronger predictor of interfirm rivalry than is capability (Chen & Miller, 1994).

In addition, contention in the market will have not only the most direct, but also the most visible and immediate, effects on competitive behavior, much more so than competition based on resource endowments. Competitive exchanges with high-market-commonality rivals will have direct and immediate implications for market share or the bottom line (Chen & MacMillan, 1992). Moreover, the degree to which two firms are interdependent in the market usually will be quite visible to strategists, whereas strategic resource endowments, because of their idiosyncratic nature and their causal ambiguity (Barney, 1991), will tend to be

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much less transparent. Because of the visibility associated with high market commonality, other stakeholders connected with the firm also will be aware of any competitive challenge and, thus, pressure the firm with respect to the issues of whether and how to act and react (Pfeffer, 1982, 1987; Porter, 1984).

> *Proposition 3: Market commonality is a stronger predictor of competitive attack and response than is resource similarity.*

Competitive Asymmetry and Interfirm Rivalry

Tversky's (1977) original work on the features of similarity formalizes the concept of asymmetry and provides this article the theoretical grounding for the consideration of competitive asymmetry between firms. Challenging the basic assumption of symmetry underlying all theoretical treatments of similarity, he provided empirical evidence for asymmetric similarities and argued that similarity between two objects should not be treated as a symmetric relation. Tversky demonstrated that the commonly accepted symmetry axiom underlying the metric distance function is not valid in capturing the concept of similarity. That is, $d(a,b) \neq d(b,a)$. Statements of similarity are directional and depend on which element of the comparison is the "subject" and which the "referent" (Tversky, 1977: 328). In illustrating this concept, Tversky further pointed out that "A is like B" is not the same as "B is like A" (1977: 328). Although Tversky's general theory has been applied primarily to human behavior at the individual level, it is equally applicable to competitive behavior at the firm level. In this article, the configuration of a given competitive relationship would differ, depending on which firm was considered the focal firm. A direct implication is that if A is B's primary competitor, it does not necessarily follow that B is A's primary competitor. That is, Figure 1 could appear very different, depending on which firm in a pair is considered the focal firm.

Furthermore, Tversky's challenge of the triangle inequality and, consequently, the transitive law also has strong implications for competitor analysis and offers further support for the notion of competitive asymmetry. In competition, if A is a major competitor of B, and B is a major competitor of C, it does not necessarily follow that A is a major competitor of C: Each competitive relationship, in terms of both market commonality and resource similarity, is unique and directional, not symmetrical. Given this condition, each firm will define competitors differently and will also experience different degrees of competitive threat from each competitor because of the differences along the dimensions of market commonality and resource similarity.

The firm-specific conceptualization of competitors and competitive relationships further suggests that the competitive relationship between a pair of firms is asymmetric, depending on which competitor is the focal firm under consideration. In other words, A may pose a greater threat to

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B than does B to A. This asymmetry is likely to be present in most competitive engagements (Carpenter, Cooper, Hanssens, & Midgley, 1988; Lehmann & Winer, 1990). However, with only a few exceptions, this concept has not been addressed in the strategy literature. Although authors of current resource-based work have recognized the existence of asymmetry in general and its potential as a source of sustainable economic rent (Amit & Schoemaker, 1993), they have not yet incorporated this idea into their research agendas, nor have they extended this basic premise to examine interfirm relationships in the competitive context.

Adopting the resource-based view of the firm, Collis (1991: 51) argued that because the "vector of resources each [firm] possesses (represented by its core competence) is different," each firm would approach rivals and competition very differently, even among firms in the same "external opportunity set." Porter (1979) noted that the importance of entry barriers depends on the particular strategy adopted by *the firm*. Similarly, Hatten and Hatten (1987) made it explicit that mobility barriers between strategic groups are asymmetrical. Porac and Thomas (1990), using taxonomic mental models, suggested that there are variations in the ways firms define their competitors.

A few examples further illuminate this important idea. In airline competition, Hawaiian Airlines—a smaller and geographically focused airline—would find both American and United, two megacarriers that have expanded aggressively in the Pacific markets, its primary competitors. However, American and United may encounter Hawaiian as a competitor only in the specific markets that overlap, but not as a direct competitor in general. The following quotation neatly captures one firm's view of this phenomenon.

> Ask Scott McNealy, the chairman of fast-growing Sun Microsystems Inc., who his competitors are, and he names Digital Equipment Corp., Hewlett-Packard Co. and International Business Machines Corp. What about NCR Corp., the fifth-largest U.S. computer maker and twice Sun's size? "We never see them," he says. (Wilke, 1990: A1)

> *Proposition 4a: Competitive asymmetry is likely to exist within a pair of competitors. That is, any two firms are unlikely to have identical degrees of market commonality and of resource similarity with each other.*

In line with Tversky (1977), the significance of this competitive asymmetry lies in its behavioral implications for interfirm rivalry. Consideration of asymmetry helps to avoid the dangerous assumption that a specific competitor's awareness, motivation, and capability are the same for any particular firm. For example, firms that are considered nonkey competitors may be granted a wide latitude of action without provoking retaliation from their stronger counterparts. Similarly, stronger rivals may not be aware of the threat from weaker opponents, which view such powerful

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firms as their main targets. Such weaker firms may go unrecognized or disregarded despite the damage they may inflict. The Japanese multinational corporations' (MNCs') gradual invasion of the world market during the last several decades provides an excellent lesson about the potential threat of seemingly insignificant competitors (Hamel & Prahalad, 1990). The hard lesson learned by brand leaders in many consumer product industries after they had lost substantial share points to their private-label rivals provides a more recent example (Glemet & Mira, 1993). Hence,

> *Proposition 4b: Because of competitive asymmetry in market commonality and in resource similarity, the likelihood that A will attack B will differ from the likelihood that B will attack A. The same will hold true for response likelihood.*

ILLUSTRATION OF COMPETITOR ANALYSIS

To guide competitor mapping and future empirical research, measures of market commonality and resource similarity were developed and applied to the airline industry. For illustration of competitor mapping in 1989, pairs of 17 major U.S. airlines were compared along these two dimensions using available public information. The objective measures were validated by the perceptual data offered by key informants in the industry.

Market commonality, or the degree of presence that a competitor manifests in the markets where it overlaps with a focal firm, is determined by two factors: the strategic importance of each of the markets the focal firm shares with the competitor and that competitor's market share in these markets. Market in this industry was defined as a route (Gimeno, 1994; Karnani & Wernerfelt, 1985). The measure can be expressed as follows:

$$M_{ab} = \sum_{i=1}^{2,000} [(P_{ai}/P_a) \times (P_{bi}/P_i)] \qquad (1)$$

where M_{ab} = Market commonality that airline b has with the focal airline a;
P_{ai} = Number of passengers served by a in route i;
P_a = Number of passengers served by a across all routes;
P_{bi} = Number of passengers served by b in route i;
P_i = Number of passengers served by all airlines in route i;
i = A route, among the top 2,000 routes, served by both a and b.

Each competitor's market commonality with a focal firm was developed from a detailed, *market-by-market* analysis *across all their shared*

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markets. To take into account the overall relational pattern in which a given relationship is embedded (Burt, 1987) and the idea of competitive relativity (Chen & Hambrick, 1995), the results were "normalized," so that the sum of the market commonality indices for all of a given firm's competitors was equal to 1. Table 1 presents the market commonality mapping among pairings of 17 airlines. A list of focal firms is presented in the left-hand column; the relative market commonalities that each focal firm has with other airlines are presented from left to right.

Interesting examples can be found in Table 1. For instance, from Trans World Airlines' (TW's) point of view, the commonality index of American Airlines (AA) is .21 (row 14, column 1); that of TW from AA's perspective is .09 (row 1, column 14). Thus, AA is TW's primary competitor, but not vice versa, an example of competitive asymmetry. (In other words, $M_{ab} \neq M_{ba}$.) In another example, from America West Airlines' (HP's) perspective, the commonality index of Southwest Airlines (WN) is .40; from WN's point of view, the commonality index of HP is .38. Each is the other's top competitor. However, WN (308 routes) and HP (454 routes) competed in only 83 routes. Although they compete in relatively few markets, they are head-to-head rivals in these markets. In another example, the market commonality index of AA from HP's perspective is .08; AA, although a large firm and active in most of HP's markets (415 of 454), is not a powerful player in most of these markets. These two cases suggest that the sheer number of shared markets may not capture fully the extent of market tension that two firms develop in competition.

Resource similarity, or the extent to which a competitor shares comparable strategic endowments with a focal firm, was measured following a procedure analogous to that of market commonality. For illustration, the article chose a vital strategic endowment, fleet structure (Taneja, 1989). Different aircraft are used for various strategic and operational purposes. There were 26 major types used in 1989, classified according to such key parameters as flying distance, number of passengers carried, and type of engines used (Mondey, Cook, Hooks, & Chant, 1987). Each competitor's resource similarity with a focal firm was developed from a detailed *type-by-type analysis across all the aircraft they had in common*. A table similar to Table 1 could be constructed to illustrate these relationships.

Finally, as Figure 3 shows, each of a firm's competitors can be mapped out along both dimensions. Obviously, the composition of these maps was different for each focal firm. For instance, Delta's main competitor is clearly American (AA). However, a similar mapping for AA revealed that United (UA), not Delta, is AA's most important competitor. This example not only provides preliminary evidence of competitive asymmetry, but it also highlights the importance of conducting competitor analysis from multiple vantage points. Each competitive relationship is unique and directional, and what a firm's competitors think of the firm is as important as what its managers think of those competitors.

In addition, this firm-based approach to competitor analysis can be

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TABLE 1
Market Commonality Mapping for U.S. Airlines[a,b]

	AA	AQ	AS	BN	CO	DL	EA	HA	HP	ML	NW	PA	PI	TW	UA	US	WN
AA		0.00	0.01	0.02	0.08	0.20	0.04	0.00	0.02	0.00	0.08	0.03	0.01	0.09	0.26	0.12	0.02
AQ	0.00		0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
AS	0.18	0.00		0.00	0.02	0.10	0.01	0.00	0.10	0.00	0.09	0.01	0.00	0.01	0.33	0.14	0.00
BN	0.14	0.00	0.00		0.10	0.19	0.04	0.00	0.05	0.01	0.11	0.01	0.01	0.10	0.12	0.07	0.05
CO	0.13	0.00	0.00	0.02		0.16	0.06	0.00	0.02	0.01	0.08	0.02	0.02	0.04	0.27	0.13	0.04
DL	0.22	0.00	0.01	0.03	0.11		0.16	0.00	0.03	0.01	0.08	0.02	0.03	0.06	0.10	0.12	0.03
EA	0.11	0.00	0.00	0.02	0.09	0.36		0.00	0.00	0.00	0.04	0.15	0.03	0.06	0.04	0.11	0.00
HA	0.02	0.87	0.00	0.00	0.01	0.02	0.00		0.00	0.00	0.02	0.00	0.00	0.00	0.06	0.00	0.00
HP	0.08	0.00	0.03	0.02	0.05	0.10	0.00	0.00		0.00	0.03	0.00	0.01	0.03	0.08	0.16	0.40
ML	0.05	0.00	0.00	0.02	0.09	0.06	0.02	0.00	0.01		0.25	0.00	0.00	0.04	0.08	0.10	0.28
NW	0.16	0.00	0.01	0.03	0.10	0.15	0.03	0.01	0.02	0.05		0.01	0.01	0.07	0.21	0.09	0.03
PA	0.15	0.00	0.01	0.01	0.06	0.08	0.30	0.00	0.00	0.00	0.03		0.02	0.16	0.10	0.09	0.00
PI	0.06	0.00	0.00	0.01	0.06	0.12	0.06	0.00	0.01	0.00	0.02	0.02		0.01	0.04	0.58	0.01
TW	0.21	0.00	0.00	0.03	0.06	0.13	0.06	0.00	0.03	0.01	0.08	0.08	0.01		0.17	0.06	0.08
UA	0.28	0.00	0.03	0.02	0.17	0.10	0.02	0.01	0.03	0.01	0.10	0.02	0.01	0.07		0.13	0.02
US	0.16	0.00	0.01	0.01	0.10	0.13	0.06	0.00	0.06	0.01	0.06	0.02	0.15	0.03	0.15		0.04
WN	0.08	0.00	0.00	0.02	0.07	0.08	0.00	0.00	0.38	0.08	0.04	0.00	0.00	0.10	0.05	0.10	

AA	-American Airlines	**EA**	-Eastern Airlines	**PI**	-Piedmont Aviation
AQ	-Aloha Airlines	**HA**	-Hawaiian Airlines	**TW**	-Trans World Airlines
AS	-Alaska Airlines	**HP**	-America West Airlines	**UA**	-United Airlines
BN	-Braniff	**ML**	-Midway Airlines	**US**	-USAir
CO	-Continental Airlines	**NW**	-Northwest Airlines	**WN**	-Southwest Airlines
DL	-Delta Airlines	**PA**	-Pan American World Air		

[a] The focal firms are listed in the left-hand column; their respective competitors are listed across the top of the table. The table should be read from left to right.

[b] To make the distinction between "0.00" because of rounding and a true "0.00," the former is shaded.

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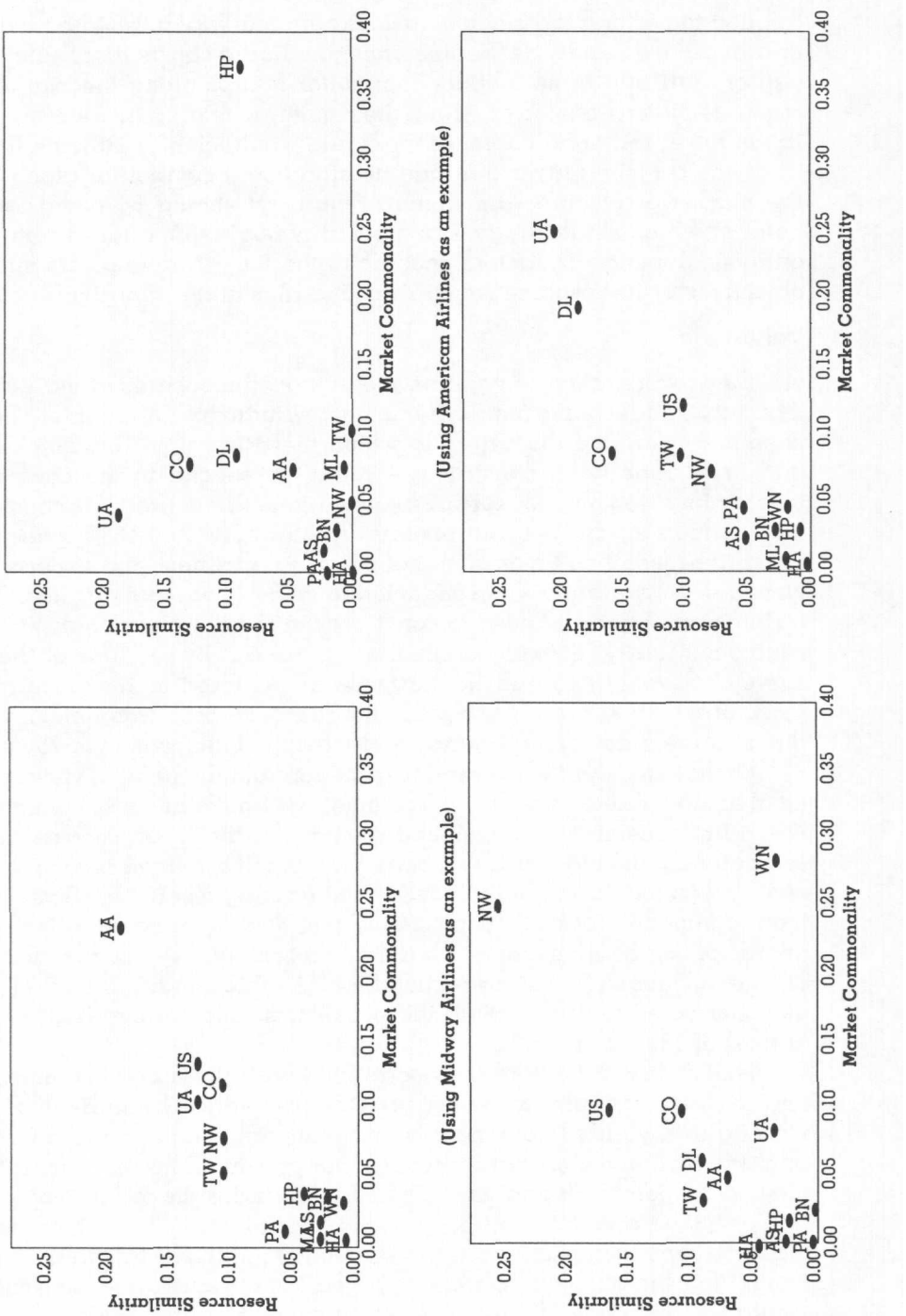
FIGURE 3
Competitor Mapping



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applied to perform the kinds of tasks traditionally performed by industry- or group-based analysis. For instance, the figure shows that Delta's competitors fall into three distinct *competitor groups* along the market and resource dimensions. In contrast, the clustering of all a firm's competitors in the lower left-hand corner of the figure would clearly indicate that the firm was a niche player that had no significant competitor along either the market or resource dimension. Finally, it should be noted that the point at which similarity and commonality begin to matter in competitor analysis depends on factors specific to the focal firm (e.g., its strategic objectives or its resource constraints and allocation priorities).

Validation

Steps were taken to validate the proposed measures of market commonality and resource similarity using key industry informants. The purpose is to examine the extent to which these two objective measures—and their underlying constructs—would correspond to the competitive tension imposed on each airline by its various competitors, as considered by informed executives and experts. A mail survey of 163 highest level executives (senior VPs or above of all major airlines) and experts (analysts and consultants) was conducted to study 14 sample airlines. (Three airlines among the 17 used to construct the market commonality and resource similarity indexes had ceased operations by the time of the mail survey.) Seventy-two questionnaires were returned (a response rate of 45%), of which 71 were usable. No nonresponse bias was detected, and the average industry experience of the respondents was over 25 years.

Each respondent was asked to consider from the point of view of *each* focal airline and to rank its top 5 competitors from a list of 13 competitors. A scoring scheme was developed so that the airline ranked as the top competitor of the focal airline received a score of 5; ranked second, a score of 4, and so on; those not included in the ranking received 0. Scores were then summed across all responses. Thus, each sum score reflected the degree of competitive tension that a given competitor imposed on a focal airline, as judged by survey respondents. A table similar to Table 1 could be constructed to illustrate all these pair-wise competitive relationships (a total of 182, or 14×13).

The survey data were then correlated with the market commonality and the resource similarity measure, respectively. The individual pair-wise figures, yielded from the market commonality measure (Table 1) and from the resource similarity measure (not presented here), constitute the basic data points for analysis. The correlation for the former is .74 ($n = 182$, $p < .001$), and .59 ($n = 182$, $p < .001$) for the latter. Thus, there is very high correspondence between the subjective judgment by industry informants and the objective measures of market commonality and resource similarity, developed from two different sources of information. The convergence of results provides preliminary support for the validity of the measures and the underlying constructs.

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DISCUSSION

There are two primary purposes for this article. First, it proposes a new conceptualization of competitor analysis by introducing two firm-specific and theory-based constructs: market commonality and resource similarity, which would allow for differentiation among various players in an industry. Second, it provides theoretical integration between two important subjects in strategy: competitor analysis and interfirm rivalry. Using these two constructs, the article presents propositions predicting competitive attack and response.

The article first contributes to the literature on competitor analysis by focusing on a very fundamental yet generally ignored issue, the extent to which firms are in direct competition because of the similarity in their market profiles and resource endowments. The introduction of market commonality and resource similarity adds to current efforts in strategy (resource-based work, in particular), population ecology (Barnett, 1993), and network theory (Burt, 1987), which attempt, from different theoretical angles, to provide a more differentiated depiction of the relationships between firms.

The joint consideration of these two constructs also shows the complementarity of two very prominent but contrasting strategy theories, the industry structure or Porter's (1980) theory and the resource-based theory (Barney, 1991; Peteraf, 1993a), in studying competitive advantage and competition. This article highlights the significance and usefulness of applying both the former's "outside-in" and the latter's "inside-out" perspectives for conceptualizing competitors and predicting rivalry.

More important, these two constructs and their underlying theories are applied to predict attack and response, which reflect rivalry. Through these propositions, the conceptual linkage between competitor analysis and interfirm rivalry is made explicit, a vital issue that has remained largely unaddressed in the literature.

For illustration, this article offers measures of market commonality and resource similarity, using airlines as an example. The proposed measures, derived from public data, corresponded highly to the perceptual competitor ranking provided by industry informants. The convergence of results using two independent methods provides preliminary support for the validity of the proposed measures and the underlying constructs (Campbell & Fiske, 1959; Dess & Robinson, 1984; Schwab, 1980; Venkatraman & Grant, 1986).

Implications

There are several research implications. First, the article highlights the significance of the market in which competitive battles play out and the importance of comparing the overall market profiles of firms. Strategy researchers seem to pay limited attention to the market context, instead focusing on industry, strategic group, or the firm as a unit of analysis.

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One direct implication of examining competitors on a market-by-market basis is the conceptualization of competition and competitive relationship as a phenomenon occurring at more than one level: at the global or firm level, or across all the markets in which firms compete in general; at the focal or subfirm level, or in the market(s) in which a given competitive battle of interest is playing out. This idea of "multiple-level," in contrast to multiple-point, competition could provide additional insights for understanding and predicting rivalry.

Along the same line, this article spans various analytical levels: firm, group, industry, market, competitive move. Porac and Thomas (1990) propose that different levels of focus and of abstraction are possible in defining competitors. Indeed, level of analysis will have implications for the way researchers examine competition and should be made explicit in any competitive study (Nayyar, 1993). This article takes the firm as the nexus of competitor analysis and treats the individual competitive move as the basic building block of rivalry; these foci seem especially appropriate and useful in bridging competitor analysis and interfirm rivalry.

Thus far, the discussion has focused on competition within an industry or at the business level. However, it is important to stress that the concepts developed here can be equally applied at the corporate level. The framework is amenable to the analysis of competitors pursuing a single, dominant, or related diversification strategy (Rumelt, 1974). Applying the same idea would show that Proctor & Gamble and Unilever may be paired in Quadrant I in Figure 1 because they compete head on in many similar industries with comparable resource endowments; GE and Citicorp may be rivals moving from Quadrant III to Quadrant II, because of GE's increasing commitments in financial service industries. (A similar approach can be applied to analyze Walt Disney and Westinghouse, two conglomerates that have recently attempted to move strongly into the TV network industry through acquisition.) This same idea also would be applicable to mapping global competitors in various country markets (Franko, 1989) or rivals competing where industry boundaries are unclear or ill defined (e.g., multimedia industries), and to examining competition among nations (Porter, 1992).

The conceptualization of resource similarity in terms of the comparability of resource endowments and the proposed measure from the airline industry also have implications for researchers' adopting the resource-based view of the firm. Recent interest in applying this theory seems very strong in the field of strategy. Progress has been made at the conceptual level, but it has been greatly limited by difficulties in operationalization and measurement of the proposed constructs (Conner, 1991). This article is one of the first attempts in this direction; it is similar to efforts by Henderson and Cockburn (1994), McGrath, MacMillan, and Venkataraman (1995), and Reed and DeFillippi (1990).

The measurement of resource similarity is potentially problematic because of the different ways resources may be conceived. However, the

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proposed idea of using a type-by-type comparison between a focal firm and each of its competitors offers some promise. Once a focal firm is chosen as a basis for comparison, it becomes easier to determine which of its resources is most relevant and which of its competitors is the most (or least) similar. A firm's entire range of strategic endowments may be aggregated on a resource-by-resource basis; the very different types of resources held by a firm, such as human resources (Schuler & Jackson, 1987), strategic assets (Amit & Schoemaker, 1993), knowledge-based competencies (Teece et al., 1994), corporate applied R&D (Helfat, 1994), and brand equity, thus, could be assessed on a comparable basis in order to develop an integrated measure of resource similarity on a firm level. It is possible, for example, to ask industry informants to identify a firm's entire range of strategic endowments, to assess the relative importance of each, and to compare all of a firm's competitors with the firm on a resource-by-resource basis and from this information to develop an integrated measure of resource similarity on the firm level. (Market commonality also can be assessed using a similar approach, involving key industry informants.) Alternatively, a multivariate method of assessing similarity could be used (e.g., Cool & Dierickx, 1993).

The rationale underlying the first propositions suggests that different forces drive action and response behavior: high market commonality with a defender will reduce an attacker's aggression in initiating attacks, whereas high market commonality with an attacker will increase a defender's proclivity to respond. Chen and Hambrick (1995) found discrepancy with respect to a firm's action and response profiles: Firms that were aggressive in attacking rivals were not necessarily responsive under attack, and vice versa. Baum and Korn's (In press) study of market entry and exit behaviors also supports this logic.

This action/response dichotomy has implications. For example, an important issue in competitive studies is whether similar firms tend to compete more aggressively or less aggressively with one another. Peteraf (1993b), following Caves and Porter's (1977) theory, found that strategically similar firms were less likely to compete, as reflected by their average high price. This result is also consistent with the assumption of tacit collusion, which underlies multiple-point competition literature. By contrast, Gimeno and Woo (In press), after controlling for multimarket contact, showed that high strategic similarity would increase rivalry, as reflected by low average price. This finding is in line with the argument that structurally equivalent firms tend to be more competitive (Abrahamson & Fombrun, 1994; Burt, 1987). (It should be noted that according to the resource-based perspective, resource similarity would imply strategic similarity, which, in turn, would predict greater rivalry. This prediction is based solely on *capability*, as underlined in Proposition 2. In contrast, the studies reviewed here have been focused almost exclusively on the *motivational* aspect of competitive decision making.) This apparent contradiction commands further investigation. This article suggests that the

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issue is not whether similar firms are aggressive toward one another in an absolute sense or across all conditions, but rather how they are likely to behave in a given context, as attackers or as defenders.

This article also has several practical implications. A firm can use competitor mapping, shown in Figure 3, to help allocate resources (time, money, attention, etc.) in proportion to the degree of threat each competitor imposes and to monitor that competitor's movement over time. Such mapping also can help a firm to identify ideal attack targets: One firm may identify its least direct competitor—from both the market and resource perspectives—as an appropriate target, whereas another might elect to challenge its primary rival head on to gain market share. Furthermore, executives also can use this framework to address the issue of repositioning the firm in an industry (Porter, 1980). It is generally advisable to reposition if a firm is developing very high market and resource similarity with dangerous or "bad" competitors (Porter, 1985), because the risk is extremely high in this kind of situation, and any move a firm makes could provoke serious retaliation. The issue then becomes weighing the relative impediments between market (Caves & Porter, 1977) and resource barriers (Wernerfelt, 1984). Similarly, by integrating the two dimensions, firms also would be able to identify possible alliance partners for various strategic or competitive purposes. For instance, it is possible that competitors in Figure 1, Quadrant IV may complement well a firm considering market expansion because of their different market focus yet similar resource endowments.

Competitive asymmetry also has important implications. Managers of a firm should analyze the competitive environment from the point of view of each of its competitors. What competitors think of a firm is as important as what that firm thinks of them. A given competitor might seem insignificant from the point of view of a particular firm (such myopia often exists in competitors in Quadrant III); however, that competitor may consider the firm its single most important competitor and, thus, its primary target of attack or counterattack (the perception very often adopted by firms in Quadrant II). Ultimately, a key challenge for strategists is actually to create competitive asymmetry and fully to utilize it to their firm's advantage.

Limitations and Future Directions

Although an important first step, the article may be limited by its focus only on existing competitors in an industry. Thus, it is important for researchers to develop a conceptualization of potential competitors that currently are not in the industry as well as to predict their likely entry strategies and attack targets. The idea of resource similarity developed here should be useful in this regard.

The action and response variables examined in this article represent only a subset, albeit an important one, of rivalrous behavior. The purpose here is to introduce the two independent variables of market commonality

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and resource similarity, rather than a selection of the dependent variables. In the future, researchers can study the effects of these variables on issues such as market signals (Heil & Robertson, 1991), strategic commitment (Ghemawat, 1991), bluffs (Porter, 1980), speed of decision making (Eisenhardt, 1989), competitive (de-) escalation (D'Aveni, 1994), and market entry and exit (Baum & Korn, In press). Naturally, the propositions presented here should be examined empirically to test the significance of market commonality and resource similarity in predicting rivalry.

The issue of level of analysis and its effects on the conceptualization of competition have been addressed above. It also should be noted that although the dyad focus and the firm-level pair-wise emphasis represent a critical first step, the proposed approach nonetheless should be complemented by the group or structural approach in which the social nature of competition is considered. Although contextual or industry factors may not be particularly helpful in predicting which firms are likely to initiate attacks or engage in responses, they are certainly helpful in specifying broad competitive parameters. That is, rivalry is not only a function of market commonality and resource similarity, but it is also a function of the industry structure or the context of the markets in which firms compete. Competitive moves are often made with attention to their implications, not only for each of a firm's rivals but also for the complete competitive landscape. (Figure 3 indicates, for example, that United is American's primary competitor, American is Delta's primary competitor, and so on, along a "chain" of competitive relationships. Any move made by United, therefore, would have a trickle-down effect on all other competitors along the chain.) Therefore, this line of research could be made more fruitful if authors take into account these considerations, incorporating such variables as stability of market share or past social conditions among competitors. How important would commonality and similarity be under various demand situations? Under what conditions would they be more important or less important? The consideration of contextual factors would add further complexity and richness to the framework developed here.

It also would be useful for researchers to conduct interindustry longitudinal studies to develop a fuller understanding of the relationship between market commonality and resource similarity over time. The convergence and divergence of these two drivers of rivalry may be an indication of the varying degree of rivalry at the macroindustry level. Similarly, as Figure 2 illustrates, there is a feedback loop leading from rivalry and its outcome back to the analysis of the prebattle relationship between competitors. It would be most useful to track over time how structural tension between firms affects actual rivalrous engagements and how repeated encounters will, in turn, affect the competitive relation between these firms. This kind of investigation begins to forge the micro-macro link that has not been addressed in social theorizing (Coleman, 1987).

Additionally, much more rigorous investigation of competitive asym-

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metry—an important but generally ignored phenomenon—should be carried out by researchers. Competitive asymmetry no doubt would have significant implications for theorists' analyzing any two firms with respect to their strategic maneuvering and competitive exchanges.

Finally, it would be useful for authors to explore the relationships between objective and subjective notions of competition, the extent to which these two perspectives may correspond, and to what extent this correspondence may relate to firm performance. It may be postulated that perception motivates and explains behavior in general but that it is nonetheless influenced by objective competitive reality. However, it also may be argued that the relative importance of perception and objective reality changes across situations. For instance, a firm's perception about a rival, even an objectively insignificant one, may be inflated if that rival is present in a market of great importance to the firm. In industries in which objective information about competition is easily available or those in which the norms of competition are well established, there should be a high correspondence between the objective and the perceptual. These kinds of issues, which touch the heart of competition, surely deserve further exploration.

In summary, the present article, drawing on a diverse set of theories and spanning different analytical levels, raises a number of theoretical issues that contribute to researchers' understanding of interfirm competition. By introducing market commonality and resource similarity, I have highlighted the significance of both market idiosyncracy and firm idiosyncracy in capturing competitive relationships. The conceptualization of market commonality refines the important idea of market interdependence, which prevails in the management literature. The idea of competitive asymmetry introduced here offers a unique perspective that can be used by theorists to gain a deeper understanding of competition; it also brings to the fore the fundamental question of perceptual versus objective views of competition. The microfocus on firm-specific competitive relationships and on individual competitive moves contributes toward the ultimate goal of building a predictive theory of microcompetitive behavior.

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