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SEEING THROUGH THE EYES OF A RIVAL: COMPETITOR ACUMEN BASED ON RIVAL-CENTRIC PERCEPTIONS

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This research advances the construct of competitor acumen, or the extent to which a focal firm's assessment of a given rival's prioritization of its competitors reflects the rival's own view. We propose that the way a firm is embedded within market-engagement relationships shapes the firm's competitor acumen. We test our propositions using data collected from the U.S. airline industry and highlight the significance of competitor acumen by showing its impact on a focal firm's market share gain relative to a rival. The findings contribute to competitive dynamics research and suggest a new approach to competitor analysis based on rival-centric perceptions.

> If you know the opponent and know yourself, your victory will not stand in doubt.
>
> -Sun Tzu, *Art of War*

Competitor analysis occupies a central place in strategy and organizational research (Hitt, Ireland, & Hoskisson, 2007; Smith, Ferrier, & Ndofor, 2001). Scholars have investigated various definitions of a firm's competitors (Porac, Thomas, Wilson, Paton, & Kanfer, 1995; Reger & Huff, 1993). Defining or identifying competitors is an important but complicated task that involves careful evaluation of the tension between a focal firm and each of its competitors (Chen, Su, & Tsai, 2007). Without such evaluation, a firm may underestimate the threat posed by a competitor or inadvertently allow a rival to go unnoticed (Zajac & Bazerman, 1991). Important contributions have been made in refining competitor definitions and identifications; however, the literature continues to be constrained by an approach that centers on the focal firm. The identification of a firm's rivals and the assessment of the tension or threat each of these rivals poses have been made unilaterally, from the viewpoint of the firm, and based either on objective criteria (e.g., industry or group affiliation, size or market share, customer overlap) (Ang, 2008; Baum & Korn, 1996; Baum & Lant, 2003) or on perceptions or opinions of the firm's strategies (Reger & Huff, 1993). Almost no effort has been made to put such an analysis within the context of the firm's rivals or to evaluate competition with the firm from their viewpoints. Although scholars have highlighted the importance of competitor analysis in strategy formation, the consideration of a rival's perceptions in a focal firm's strategy formation and the consequences of such consideration have not received systematic investigation. As Bloodgood and Bauerschmidt (2002) suggested, researchers studying a firm's strategy should allocate additional effort toward determining the accuracy of the firm's assumptions about its competitors.

It has long been held that seeing through the eyes of a rival (Lamb, 1984) is the ultimate objective of competitor analysis and a critical element of competitive success. Seeing through the eyes of a rival allows a focal firm to comprehend the rival's competitive concerns and priorities and eventually increases the focal firm's chances of outcompeting the rival. Indeed, to compete effectively, a firm needs to understand a rival's view of competitors (Porter, 1980). For example, when Caterpillar formulated its strategy to compete with Komatsu, Cat-

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erpillar's decision to form an alliance with Mitsubishi to undercut Komatsu was a result of its recognition that Mitsubishi was Komastsu's primary rival in Japan. Similarly, when Hewlett-Packard formulated its strategy to compete against Dell, comprehending Dell's perception of Lenovo as a main rival enhanced HP's ability to determine an opportune time to attack Dell. These examples, however, only represent some anecdotal evidence concerning the consequences of understanding a rival's view of competitors.

Several scholars have highlighted the importance of using perceptual rather than objective data to capture each firm's idiosyncratic concerns about its competitors (Porac et al., 1995; Reger & Huff, 1993). In a recent study, Chen et al. (2007) showed that a firm's subjective perceptions can explain additional variance in strategic behaviors beyond what objective market indicators can explain. Understanding a rival's perceptions is therefore critical if a firm is to know what to expect in the competitive arena and take the actions necessary to outperform the rival. Yet, a vital strategy issue has been neither formalized nor subjected to scientific investigation in the strategy literature: namely, how a firm can comprehend its rivals' perceptions of competitors, and how valid, *from the rivals' vantage point*, that comprehension is. Except for scattered theoretical efforts to incorporate such ideas as conjectures (Amit, Domowitz, & Fershtman, 1988), or the projection of a rival's intentions, research in competitor analysis has been constrained by a lack of basic frameworks and concepts intended to explain a firm's comprehension of its rival's view of competition.

In this article, we advance competitor analysis research by developing a new construct: *competitor acumen*. We define competitor acumen as the extent to which a focal firm's assessment of a given rival's prioritization of competitors—that is, the relative degrees of importance the rival places on its competitors—reflects the rival's own view. Understanding the rival's prioritization of its competitors is critical to the firm's ability to formulate effective competitive strategy (Porter, 1980). We argue that a firm's competitor acumen is influenced by the way the firm is embedded in an interconnected system of market-engagement relationships with others in the same industry. We examine how the structural patterns of market-engagement relationships influence the development of competitor acumen. Specifically, we build on a competitive embeddedness perspective (Gimeno, 2004; Gnyawali & Madhavan, 2001) to show how a focal firm's market-engagement relationships shape its acumen with regard to a given rival. We also reveal the significance of competitor acumen by empirically showing how it may help a focal firm to outperform a rival, by allowing the focal firm to gain more market share relative to the rival's share gain (i.e., a market share gain that is greater than the rival's market share gain).

By advancing the construct of competitor acumen, this research articulates and operationalizes, perhaps for the first time in the literature, one of the most fundamental notions of strategy and competition and demonstrates the impact of this notion on a firm's competitive outcome with respect to market share gain relative to a rival. By taking a relative or comparative view (Chen & Hambrick, 1995) of competitive perceptions, we propose a new approach to competitor analysis that involves putting a firm "in the shoes" of a rival in order to conceptualize competition on the basis of the rival's perceptions. In doing so, we provide a theoretical and empirical refinement to competitor analysis research by showing how perceptions can be compared and analyzed to better comprehend interfirm competition (Porac et al., 1995; Reger & Huff, 1993).

THEORY AND HYPOTHESES

Understanding the notion of "the competitor" is central to competitor analysis research, and many definitions have been proposed. Although early work defined competitors in terms of industry or strategic group affiliations (Porter, 1980), recent research has taken differences among individual firms into account when defining competitors. As a result, views and interpretations of competitors and competition are quite diverse (Calori, Johnson, & Sarnin, 1994; Hodgkinson & Johnson, 1994). A number of studies have shown, for instance, that firms in the same industry operate according to different strategic considerations and priorities and that decision makers often have different assessments of the industry (Reger, 1990). Porac et al. (1995) proposed a cognitive approach to competition, arguing that each firm bases definition and prioritization of its competitors on its own aspirations and concerns. Baum and Lant (2003) showed that similarity in organizational attributes (such as geographical location and firm size) is central to managers' beliefs about the identity of their competitors. In a similar vein, Zajac and Bazerman (1991) argued that a strategist's faulty assumption about the competitive landscape results in a blind spot or judgmental impairment, which can cause a firm to overlook the emergence of a new rival. The emphasis on individual firm differences has also motivated scholars to examine the idiosyncratic nature of each competitor. For example, Chen (1996) took a pairwise or comparative approach to

compare resource and market profiles and analyze competitive asymmetry between firms.

These firm-specific understandings of competitors create a challenge for a firm trying to decide how to engage with various rivals, each of which competes according to its own prioritization. A firm's prioritization of competitors is important because it reflects the firm's underlying strategic thinking (Porter, 1980) and has direct implications for resource allocation and engagement with competitors (Chen, 1996). When a given rival evaluates its competitors, other firms cannot, of course, observe the evaluation. Hence, a focal firm's decision makers must ask not only, With whom do we compete? (as stressed in previous studies), but also, With whom does each of our rivals compete? and Who would be important, from a competitive viewpoint, for each rival?

Previous studies on competition at both the firm and firm-dyad level have analyzed each rival differently; as a result, they have seemed to adopt (to varying degrees) a rival-centric view. For instance, competitive dynamics research (for a comprehensive review see, for example, Ketchen, Snow and Hoover [2004]) has stressed the significance of rivals' reactions in determining the effectiveness of a competitive action. The literature so far, however, has largely neglected to fully explore rivals' viewpoints and considerations, with the notable exception of Bloodgood and Bauerschmidt's (2002) investigation of the degree of agreement between direct competitors on their similarities and differences. This omission is problematic: As Montgomery and Weinberg (1979) pointed out, understanding a rival's intentions is a primary determinant of firm strategy. Likewise, Porter (1980) argued that mastery of a rival's assumptions leads to a competitive advantage. A rival's assumptions constitute its managerial perceptions leading to "attack volume" (Chen et al., 2007: 104–107). Since the significance of such perceptions has been demonstrated, a natural next step is to show how a focal firm can comprehend its rival's perceptions. If ungrounded in precise assessment of a rival's perceptions of its competitors, any inference or projection about the rival and its competitive actions is likely to be inaccurate.

Competitor Acumen

To perform an effective competitor analysis, a firm—in addition to gathering good-quality competitive intelligence (Ghoshal & Westney, 1991)—needs to construct a cognitive map of all competitive relationships between firms in a given industry. Each firm, however, has different capabilities when it comes to comprehending the unique competitive concerns and priorities of each of these rivals. To capture this variance in firm capability and to reflect the extent to which a focal firm is able to accurately comprehend its rivals, we introduce the construct of competitor acumen.

Our conceptualization of competitor acumen includes a rival's consideration of its own competitors and extends previous research on the use of such ideas as conjectures, which involve (albeit without a sound basis for validation) the anticipation of a rival's intentions or likely actions (e.g., Amit et al., 1988) as well as "thinking one step ahead" to "get some idea of what opponents theorize." In contrast to Amit et al.'s focus on a rival's conjectures about the focal firm's behavior, the focus of our research is the rival's prioritization of its own competitors (including the focal firm and all the other players in the shared industry). By formalizing the construct of acumen, our research injects a much-needed empirical impetus into these untested strategic prescriptions.

To evaluate competitor acumen, it is necessary to determine a benchmark as the basis for comparison (Venkatraman & Ramanujam, 1987). To assess a focal firm's acumen, we used a target rival's perception of the relative importance of its competitors in the industry as a benchmark. A firm with high acumen with regard to the rival in question is one that can effectively ascertain the rival's prioritization of its key competitors; we can compare the firm's perception of the rival's competitors with the rival's own assessment. For example, if firm A thinks that X and Y are the primary competitors of rival B, and B considers X and Y its primary competitors, we can say that A has a valid perception of B's competitive relationships. Hence, A has a high level of competitor acumen with respect to B.

In keeping with the competitive dynamics perspective, we consider every competitive relationship to be unique and hold that asymmetry may exist between a pair of firms (Chen, 1996). We argue that a firm's competitor acumen is specific to each firm-rival dyad in which a focal firm is engaged. A firm may have keen acumen with regard to certain rivals but not others. Thus, we analyze competitor acumen at the dyadic level because firms' perceptions of each of their rivals may vary in accuracy. For example, even though firm A has a valid perception of rival B's competitive relationships, firm A may not have an equally valid perception of other rivals' competitive relationships. Our conceptualization makes it possible to examine the different degrees of accuracy with which a focal firm assesses each rival in the context of the rival's own evaluation of its competitive relationships with all the other industry players, including the focal firm

itself. The construct of competitor acumen, with its rival-centric conceptualization, therefore enhances understanding of the role of perceptions in competitor analysis (Reger & Huff, 1993).

Recognition of the importance of a rival's perception represents a significant theoretical advance in competitor analysis. The conceptualization of competitive response (or a rival's reaction to a move) by competitive dynamics scholars (Smith et al., 2001) has advanced research in this area. Similarly, our study's emphasis on a comparative or relative perception between a firm and its rivals plays a defining role in competitor analysis. It helps to formalize and operationalize the promising construct of competitor acumen and reinforces the conceptual and empirical connections between firm perception and behavior (Dutton & Jackson, 1987), as well as between competitor analysis and competitive dynamics (Chen, 1996).

More importantly, the conceptualization of competitor acumen refines existing research on competitor analysis by putting a focal firm "in the shoes" of a given rival, as well as by using the rival's own prioritization of its competitors as the basis or true score for comparison. These two related refinements contribute to the formalization of the rival-centric approach in competitor analysis.

Competitor acumen is significant because it has implications in the marketplace. It can help enhance and improve a firm's market position, as it allows the firm to make informed decisions in competitive engagements, and it increases the firm's chances of outperforming its rivals (Smith et al., 2001). Moreover, it reflects a firm's knowledge and capability in a competitive context and is likely to secure the firm's position in a market.

Competitive Embeddedness as a Source of Acumen: Managing Market-Engagement Relationships

To examine how competitor acumen can be developed, we draw on the concept of embeddedness and extend it to the context of interfirm competition. Following Polanyi's (1957) study, many scholars have used the concept of embeddedness to explain economic action (e.g., Granovetter, 1985; Uzzi, 1997). Recently, Gnyawali and Madhavan (2001) and Gimeno (2004) proposed an embeddedness perspective on competitive behavior, suggesting that market players are not free to undertake competitive action as atomistic entities, but are influenced by a network of interfirm relationships. Network theory has been applied to all different kinds of relationships (including cooperative and competitive ones) in prior research (e.g., Kilduff & Tsai, 2003; Tsai, 2002; Tsai & Wu, 2010; Wasserman & Faust, 1994). In the context of interfirm competition, the most salient relationship is *market engagement*, which reflects the extent to which the members of a pair of firms interact and engage in each other's markets as well as the strategic importance of these markets from both a focal firm's and the target rival's perspectives[1] (Chen, 1996). As many studies have suggested, two firms come to know one another through competitive interactions in different markets and, more importantly, the way they engage in each other's markets shapes their respective perceptions and behaviors in the competitive arena (e.g., Baum & Korn, 1996; Gimeno, 1999).

In this research, we investigate how competitor acumen is shaped by competitive embeddedness, defined as the extent to which a firm interacts with a rival, as well as with the rival's competitors, in various markets. Competitive embeddedness reflects the way a firm manages its market-engagement relationships in terms of dyadic and structural considerations. We argue that competition between firms occurs in a complex network of market-engagement relationships and that firms and their competitors are all embedded in this network. To understand interfirm competition and the perceptions of such competition, we need to examine how firms are embedded in the entire system of interconnected market-engagement relationships.

We distinguish between relational competitive embeddedness and structural competitive embeddedness. This distinction reflects Granovetter's (1992: 33) conceptualization of embeddedness, wherein actors' dyadic (pairwise) relations and the structure of the overall network of relations among all actors affects economic action and outcomes. Whereas relational embeddedness captures the strength or intensity of a relationship, structural embeddedness emphasizes the structural configuration of a network (Moran, 2005; Rowley, Behrens, & Krackhardt, 2000). Such differentiation suggests two discrete ways a firm may strengthen its market-engagement relationships with a given rival by strategically entering certain markets to get to know its rival and build acumen: relational competitive em-

[1] Market engagement allows comparing a focal firm's overall market portfolio with a target rival's overall market portfolio. To increase market engagement with the rival, the firm cannot simply expand or diversify into all markets. Instead, in competitive engagement, the firm must carefully manage its market portfolio and emphasize entry into markets that are of strategic significance to the rival.

beddedness emphasizes increasing presence in the markets in which the rival is strategically located, but structural competitive embeddedness stresses entering the strategically valuable markets of the rival's competitors who are also competitors with one another. Considering these two aspects of competitive embeddedness, we examine not only how two firms are related via their direct market engagement, but also how each is connected to other players in the industry as well as how other players are linked through intertwined patterns of market-engagement relationships.

Relational competitive embeddedness. Prior research on interfirm alliances and transactions has suggested that relational embeddedness includes trust, information transfer, and joint problem solving (Uzzi, 1997). In contexts in which head-on competition is intense, competing firms do not usually trust each other or work to solve problems together. Nevertheless, they are still able to gain understanding of each other through market interactions and to become familiar with each other's mind-sets and behavioral patterns. Focusing on dyadic market-engagement relationships between firms, relational competitive embeddedness captures the intensity of a focal firm's market engagement with a rival, encompassing the strategic significance of markets from the focal firm's as well the target rival's perspective (Chen, 1996). Clearly, when firms operate in the same markets, their competitive outcomes are interdependent. As Gimeno (2004) suggested, competitive embeddedness manifests itself in a network of competitive relationships through niche or market overlap. The more two firms encounter each other in those markets, the greater their degree of relational competitive embeddedness.

A focal firm that shares a high degree of relational competitive embeddedness with a given rival is likely to come to know the rival well and to develop an ability to predict the rival's behaviors (including its actions or lack thereof) that is based on extensive experience dealing with the rival in multiple markets. Previous studies have shown that the extent to which firms interact in multiple markets is likely to influence the patterns of their competitive actions (Baum & Korn, 1999; Gimeno, 1999). A high level of relational competitive embeddedness between a focal firm and a rival implies that the firm has extensive experience in engaging with the rival (Chen & Miller, 1994). This experience gives the firm a greater depth of knowledge about the rival and allows the firm to better understand the rival's competitive strategy and intentions (Porter, 1980). As previous research has suggested, a high level of interconnectedness between firms interacting in a number of different markets increases their knowledge of each other (Boeker, Goodstein, Stephan, & Murmann, 1997). As a result, a firm is likely to have a high degree of competitor acumen with respect to a rival when the firm's relational competitive embeddedness with the rival increases.

Hypothesis 1. A focal firm's relational competitive embeddedness with respect to a given rival is positively associated with the firm's competitor acumen with regard to the rival.

Structural competitive embeddedness. Unlike relational competitive embeddedness, which focuses on the immediate influence that two firms in a dyad have on each other, structural competitive embeddedness takes into account the patterns of interactions with players beyond the dyad. That is, it embraces the overall network structure of competitive relationships surrounding a focal firm and a given rival. As many scholars have suggested, the structure of a network affects perceptions of individual actors in the network (e.g., Ibarra, Kilduff, & Tsai, 2005; Kilduff & Tsai, 2003; Krackhardt, 1990). Competitor acumen, which involves perceptions of interfirm competition, is thus likely to be influenced by network structure. The structural configuration of a firm's network shapes the firm's capability to comprehend the competitive priorities of a rival that is also part of the firm's network. Whereas a focal firm has its own distinctive capabilities, its acumen with respect to a given rival represents a dyad-level capability determined by the firm's relative structural position that describes how the firm and the rival are connected in the network.

Structural embeddedness has to do with how actors' mutual contacts are connected to one another (Burt, 1992; Coleman, 1990; Granovetter, 1992). Scholars have examined the pattern of overlapping connections between two actors when examining structural embeddedness. For example, Burt (1992) captured the extent to which the relationship between "ego" and each of the "alters" in ego's neighborhood "constrains" ego. In a network of market-engagement relationships, structural competitive embeddedness increases as a firm engages in more markets in which a rival's competitors are present. If a focal firm shares a high degree of structural competitive embeddedness with a given rival, it can be inferred that the focal firm and the rival are linked though an interconnected system of market-engagement relationships that involve many common competitors. Interacting with the same competitors, as a rival does in multiple markets, is likely to prompt the firm to employ a strategic perspective that allows it to actively sim-

ulate the rival's considerations. Because the firm will tend to face situations comparable to those the rival faces, it is likely to develop a sense of what the rival fears and what the rival intends to do, as it will be able to refer to its own experiences when standing in the shoes of the rival. In addition, prior research has shown that common contacts provide important channels for information (e.g., Ahuja, 2000; Burt, 1992). As Granovetter noted, "To the extent that a dyad's mutual contacts are connected to one another, there is more efficient information spread about what members of the pair are doing" (1992: 35). Through many overlapping indirect contacts, firms can triangulate information from different sources to evaluate the accuracy of such information (Echols & Tsai, 2005; Rowley, Behrens, & Krackhardt, 2000) and, consequently, come to develop a valid perception of their rivals' views and priorities of competition. Thus, the higher the degree of structural competitive embeddedness between a focal firm and a given rival, the more opportunities the firm has to improve understanding of the rival from other firms also interacting with the rival and thus achieve a valid assessment of the rival.

In situations of relational competitive embeddedness, a focal firm develops a sound assessment of a given rival through its firsthand market interactions with the rival that occur via their common presence in shared markets. By contrast, structural competitive embeddedness helps the firm by giving it distant observations of how the rival interacts with various competitors in the marketplace, allowing the firm to verify and modify the perception it has formed about the rival.

Indeed, the focal firm can easily place itself in the shoes of the rival when it has extensive experience interacting with the rival's various competitors. It may well be able to develop a sensible comprehension of the rival's situation and envision the strategic decisions and/or competitive moves the rival is likely to make against the firm. By having a high degree of structural competitive embeddedness with the rival, the focal firm has opportunities to interact with other firms that are connected to the rival and can therefore better understand the rival's viewpoint and position based on its own experiences. As a result, the firm is more likely to develop an accurate assessment of the rival.

Hypothesis 2. A focal firm's structural competitive embeddedness with respect to a given rival is positively associated with the firm's competitor acumen with regard to the rival.

Competitor Acumen and Its Market Consequences

A number of scholars have examined issues concerning the stability of market leadership (Banbury & Mitchell, 1995; Robinson, Fornell, & Sullivan, 1992). Few, however, have examined the impact of competitor analysis on interfirm rivalry and the ensuing changes in rivals' market share. Investigating the market consequences of competitor acumen will help reveal the promise of this construct and reinforce the theoretical link between competitor analysis and competitive dynamics (Chen, 1996). Because our research focuses on the firm-dyad level of analysis, we were particularly interested in the competitive outcome between a pair of firms, as manifested in the change in the relative market shares (relative market share change) of a focal firm and a rival in a given market. In keeping with previous research on market outcome (e.g., Ferrier, Smith, & Grimm, 1999), we used a one-year window, assessing relative market share change for the year following the year in which we measured competitor acumen. Specifically, we investigate how a focal firm's competitor acumen may widen the market share gap with a smaller rival (one that previously had less market share than the focal firm) and narrow the gap with a larger rival (one that previously had more market share than the focal firm) in the year subsequent to the year of our measurement of acumen.

A firm with a high level of competitor acumen is capable of understanding a rival's intentions and making sound predictions about its future actions. Such a firm is likely to be able to launch its own attacks effectively, as well as to move swiftly to prevent (or respond to) the rival's attacks. It is important for a firm to have the capability to either find new tactics quickly or delay rivals' movements (Smith et al., 2001). Armed with a high level of competitor acumen, the focal firm knows the rival's primary competitors and potential vulnerabilities and can therefore initiate proper competitive actions to undermine the rival. Knowledge about how to carry out competitive moves is critical for a firm to improve its market share position (Ferrier et al., 1999). We argue that, other things being equal, a firm with a high level of competitor acumen with regard to a rival is likely to be in an advantageous position and gain more market share relative to the rival. Clearly, when predicting the effect of a focal firm's acumen on its market outcomes relative to a rival, we need to take into account the rival's acumen as well, given that the rival will also try to rely on acumen to outperform the focal firm. Thus, we control for the rival's acumen in our prediction:

Hypothesis 3. A focal firm with a high level of competitor acumen with regard to a given rival is likely to gain more market share relative to the rival, provided that the rival's acumen is controlled for.

Whether a firm can increase its market share relative to a rival's is determined by the firm's capabilities, and competitor acumen, in essence, relates to the underlying dimensions of dynamic managerial capabilities (Adner & Helfat, 2003; Eisenhardt & Martin, 2000). Scholars have applied various capability-based arguments to explain performance differences among firms (Leonard-Barton, 1992; Teece, Pisano, & Shuen, 1997). Sirmon, Gove, and Hitt (2008), for instance, in their study of dyadic competition between professional baseball teams, showed that outcomes of competitive contests rest on how teams manage and deploy their resources.

Our conceptualization of competitor acumen operates from the premise that each rival is idiosyncratic. In contrast to previous capability research, which has focused on firm-level analysis, our approach to competitor acumen, as noted above, highlights capability at the dyadic level. Our research thus expands the traditional capability-based considerations and provides a refined, comparative conceptualization that is suitable for linking dynamic capability and competitive dynamics research. In addition to competitor acumen, which reflects a firm's capability in comprehending a given rival's prioritization of its own competitors, we include in our study the firm's resource deployment capability in markets where it competes with this rival.

Resource deployment capability reflects how quickly a focal firm can mobilize its existing resources to the market(s) in which it engages with a given rival. It indicates the firm's readiness to contest a rival with its existing available resources in a specific market. In the airline industry, for example, an airline with many arriving and departing flights to and from a city has the resource deployment capability to contest another rival airline flying a new route that includes the city in question, as the airline engaging with the rival can easily utilize its existing fleets and staff from that city to serve the new route. Such firm-market-specific capability will not be effective, however, unless the focal firm also possesses competitor acumen with regard to the rival in question. Knowing a rival's priority with regard to its own competitors will help the firm better anticipate the rival's resource movements as well as its entries and exits (Baum & Kohn, 1996) in various markets in which the two firms directly compete. Indeed, competitor acumen affords a firm the knowledge and comprehension it requires within a given competitive context.

Competitor acumen is particularly important when firms are making decisions about shifting resources between markets to engage rivals effectively. Without knowing how a rival prioritizes its competitors, a focal firm cannot successfully utilize its resources from other markets to engage with the rival in the focal market. We argue that the effect of a firm's resource deployment capability on market outcomes is contingent upon the firm's competitor acumen. Knowing how a given rival comprehends and prioritizes its own competitors will help a firm decide how best to allocate and mobilize its resources in its contest with the rival; that is, the firm's competitor acumen will help strengthen the positive effect of its resource deployment capability on market performance. Specifically, we predict that the interaction between competitor acumen and resource deployment capability has a positive impact on a focal firm's market share gain relative to a given rival.

Hypothesis 4. A focal firm's competitor acumen positively moderates the relationship between the firm's resource deployment capability and its relative market share gain.

METHODS

Research Setting and Data Collection

We tested our hypotheses using data collected from the U.S. airline industry. We chose this industry for several reasons. First, a market in the airline industry can be clearly defined in terms of a specific route between two cities. Availability of data on the routes each airline serves makes it relatively easy to identify and operationalize a particular market. Second, the abundance of previous studies on competition in this industry (e.g., Baum & Korn, 1999; Fan, 2010; Gimeno, 1999) allowed us to compare results and show how key constructs of this study (e.g., competitor acumen and competitive embeddedness) add to the existing literature.

We used the Department of Transportation's "Origin-Destination (O-D) Survey of Airline Passenger Traffic" to identify each airline's markets and its contacts with various rivals in these markets. We mailed a survey to 44 senior executives of 13 major airlines (accounting for 92.2 percent of market share in the industry). In total, 16 executives responded, providing us with information that captured managerial perceptions of interfirm compet-

itive relationships.[2] Although we sought multiple respondents for each airline, we were able to get two or more respondents from four airlines. We ran quadratic assignment procedure (QAP) correlations to check for consistency of multiple responses, and the correlations ranged from 0.65 to 0.83. We asked each respondent to assess his or her firm's relationships with various airline rivals as well as other firms' relationships with competitors. In our analysis, we excluded relationships that had missing data and included only those pairs with complete valid responses from both focal and target firms. Our final sample consisted of 72 competitive relationships predicting competitor acumen at the firm-dyad level.[3]

Each firm competed in a different set of markets, and the rivals that each firm confronted also varied from market to market (Chen, 1996). To capture market heterogeneity in our analysis, we examined consequences of competitor acumen (Hypotheses 3 and 4) at the dyad-market level. To select markets, we followed previous research (Chen et al., 2007), starting with airline routes (city pairs) that had at least 1,000 annual passengers in 1991 (these routes accounted for 95.8 percent of the market). We then focused on those routes in which a focal firm displayed aggression during our study period—that is, if the focal firm reduced price and its percentage change in yield was less than zero from 1990 to 1991.[4] For each route selected, we examined all possible dyads (or pairs of firms), as long as we had complete information about their acumen. Our final sample consisted of 26,485 dyad-routes.

Dependent Variables

Competitor acumen. Focal firm *i*'s acumen with regard to target rival *j* is conceptualized as the extent to which the executives of firm *i* can accurately assess *j*'s top competitors. Two primary steps are involved in measuring competitor acumen. First, in our survey, we asked our executive informants to identify and rank each airline's (including their own) top five competitors[5] by standing in the shoes of each airline. Second, we assessed the accuracy of the focal firm's responses by comparing them with a target rival's responses concerning the rival's top competitors.

To compare the responses, we converted our original ranking data using the following scoring scheme: The airline rated as the top-ranked competitor of a focal airline received a score of 5; the second airline, a score of 4, and so forth. Those not included in the ranking received a score of 0. This conversion assumes equal distance between ranks (i.e., the top competitor is one rank ahead of the second competitor, and similarly, the third is one rank ahead of the fourth) to allow us to examine similarity (or dissimilarity) in responses in terms of rank differences.

We then calculated a focal firm's acumen using the reversed score of a measure of the dissimilarity between focal firm *i*'s assessment of target rival *j*'s competitors and *j*'s own assessment. Let $V_{i,j'} \rightarrow k$ be a row vector representing *i*'s assessment of *j*'s ratings of the other *k* competing airlines, and $V_{j,j} \rightarrow k$ be a row vector representing *j*'s own assessment of its

[2] Our sampling frame consists of individuals with a senior vice president or higher position in all major airlines found in the 1989 edition of the *World Aviation Directory*. The executives, who had participated in an airline competition study conducted in 1991 (Chen & MacMillan, 1992), were de facto strategic decision makers and informed industry experts with an average tenure of more than 25 years.

[3] Four airlines did not provide insider ratings. Hence, our sample consisted of executives from nine companies, and there were 72 ($= 9 \times 9 - 9$) pairwise relationships. Two of these relationships, however, were not rated, resulting in two missing cases for a focal firm *i*'s acumen with regard to a given rival *j* (A_{ij}). Thus, the sample size is 70 in Table 2 because of the listwise selection of cases. All other variables have 72 observations.

[4] The yield, or revenue per passenger-mile, is a widely used measure of airline pricing. In the airline industry, lower yields indicate more aggressive competitive behavior (Chen & Miller, 1994). To check for robustness, we tried different measures of aggressive price reduction, and the results were highly comparable to what we have reported here.

[5] We used rank-order assessment in our survey because we were mainly interested in capturing a firm's prioritization with respect to its top competitors. Rank-order is a conceptually meaningful and common approach in competitor analysis. A strategist, perhaps as a result of simple categorization, tends to have a limited span of attention in considering and analyzing rivals and is typically concerned with only a limited set of rivals (e.g., Porac et al., 1995; Reger & Huff, 1993). In fact, in view of our pilot study, this is exactly the reason we chose to ask a survey respondent to rank only the top five competitors. Although firms tend to be more accurate in assessing their top competitors than their lower-ranked ones, the accuracy of their assessments of top competitors still varies. Conducting an additional check, we found that 34 percent of firms' assessments of their top two competitors was "incorrect," suggesting that there is variance even if we focus only on the top two competitors.

k competitors (the true score). The degree of dissimilarity between the two assessments can be expressed as the following:

$$d_{ij} = \sqrt{\sum_{k=1}^{12} (V_{i,j' \to k} - V_{j,j \to k})^2}.$$

The dissimilarity measure would equal 0 if i's assessment of j's prioritization of competitors was exactly identical with j's own assessment. We then reversed and rescaled the above dissimilarity score by the following linear transformation so that the acumen score Aij ranged between 0 and 1:

$$A_{ij} = \frac{Max_{d_{ij}} - d_{ij}}{Max_{d_{ij}} - Min_{d_{ij}}}.$$

A_{ij} is high to the extent that i can accurately gauge with whom j believes it is competing, and the score approaches unity as the distance d_{ij} approaches zero. Appendix A presents an illustration of how we calculated A_{ij}.

Relative market share gain. We measured relative market share gain at the dyad-market level to test our Hypotheses 3 and 4. Following Ferrier et al. (1999), we measured relative market share gain in a given market by calculating the change in market share gap between a focal firm i and a given rival j based on the following formula:

$$\text{Change in market share gap} = \ln\left(\frac{M90_{rival\ j}}{M90_{focal\ i}}\right) - \ln\left(\frac{M91_{rival\ j}}{M91_{focal\ i}}\right),$$

where $M90_{focal\ i}$ is focal firm i's market share in 1990, $M90_{rival\ j}$ is a target rival j's market share in 1990, and $M91_{focal\ i}$ and $M91_{rival\ j}$ are their respective market shares in 1991. The logarithm of the ratio of the target rival's market share to the focal firm's market share indicates the gap between their market shares in a particular year. The formula reflects the difference between market share gap in 1990 and market share gap in 1991. A positive value, when market share gap is smaller in 1991 than in 1990, indicates either that a focal firm that previously had less market share than the rival was able to narrow the market share gap, or that a focal firm that previously had more market share than the rival was able to widen the gap. Both situations indicate that the focal firm was able to gain more market share relative to the rival. A negative value represents the opposite situation.

Independent Variables

Relational competitive embeddedness. To measure relational competitive embeddedness, we followed Chen (1996) and calculated, for each pair of airlines, an index that defines airline i's direct market engagement with another airline j:

$$Z_{ij} = \sum_{k=1}^{N} [(P_{ik}/P_i) \times (P_{jk}/P_k)],$$

where Z_{ij} = market engagement that focal airline i has with another airline j,

P_{ik} = the number of passengers served by i in route k,

P_i = the number of passengers served by i across all routes,

P_{jk} = the number of passengers served by j in route k,

P_k = the number of passengers served by all airlines in route k, and

k = a route served by both i and j.

Z_{ij} is determined by two factors: the strategic importance of each of the markets the focal airline shares with the competitor, and that competitor's market share in these markets. The fraction (P_{ik}/P_i) represents the relative importance of market k to airline i; the second term (P_{jk}/P_k) is the market share of airline j in route k. Z_{ij} will be large to the extent that j was considered a powerful player in the markets that are important to i. To take into account "competitive relativity" (Chen & Hambrick, 1995), we normalized the raw relationship Z_{ij} by the total engagements of $i(Z_{ij}/\Sigma_j Z_{ij})$, so that the sum of the market engagement indexes for all of a given firm's rivals is equal to 1. This transformation improved comparisons across firms, eliminating differences in magnitude of engagements.

From a focal firm's perspective, relational competitive embeddedness captures the asymmetric nature of a competitive relationship between firm i and its target rival j in such a way that the degree of i's engagement with j is not necessarily the same as the level of j's engagement with i (Chen, 1996).

Structural competitive embeddedness. To measure structural competitive embeddedness, we first created a network of market-engagement relationships among all possible pairs (or dyads) of firms in our sample. We then followed Burt (1987, 1992) to capture structural competitive embeddedness by taking into account how common contacts between two firms are linked to each firm's other direct contacts. We used UCINET (Borgatti, Everett, & Freeman, 2002) to calculate, for each rival firm j that has direct contact with focal firm i, how many of i's other rivals are also tied to j. Formally, the extent to which target rival airline j overlaps with focal airline i's other contacts can be described as $p_{iq}m_{jq}$, where p_{iq} is the proportion of i's direct contact invested in the relationship with another airline q (i's direct contact with q divided by

the sum of *i*'s total direct contacts) and m_{jq} is the marginal strength of *j*'s direct contact with *q* (*j*'s direct contact with *q* divided by the strongest of *j*'s direct contact with any firm). The value of structural competitive embeddedness will be large when the proportion of *i*'s network that connects to *j* is substantial.

Resource deployment capability. We examined an airline's resource deployment capability by looking at how dominant or active the airline is relative to a given rival at both endpoints (original and destination airports) of a route. An airline that is very active and has many passengers at the endpoints of a route can easily put more resources into the route to compete with other airlines serving the route (Borenstein, 1989; Gimeno, 1999). When an airline has significant market share at both endpoints of a route, it means that the airline has many flights from the endpoints to various destinations (and from these destinations to the endpoints). The airline thus can quickly redeploy its fleets to these destinations, and it can also use its staff at the endpoints to support these destinations. To measure resource deployment capability, we took the logarithm of the ratio between the focal firm's average endpoint market share and a rival's average endpoint market share.

Control Variables

We included several controls on trait disparity in predicting competitor acumen, as we expected that differences in organization traits affect firms' abilities and motivations to attend to each other's positions and to gauge their relative standing in the marketplace.[6] We focused on four organizational traits (age, performance, size, and slack resources) that have been suggested in prior research as key determinants of a firm's choice of referents (Fiegenbaum, Hart, & Schendel, 1996). We operationalized age as the number of years since an airline's founding, size as available seat-miles (ASM) (Chen & Miller, 1994), performance as load factor (or revenue seat-miles/available seat-miles), and slack resources as the current ratio. We then calculated disparity scores as ratios between the target firm's and the focal firm's scores on these traits. In addition, we controlled for a firm's centrality within the network of market-engagement relationships. Centrality is a key social structural characteristic that can help explain an actor's relationships with others in a network (Freeman, 1979; Gnyawali, He, & Madhavan, 2006). A firm's centrality in the market-engagement network captures the extent to which the firm is exposed to various market relationships with other firms in the industry. A central firm has contacts with many other rivals and tends to develop a clear understanding of how its competitors view a given rival in the competitive arena. Following Freeman's (1979) formalization of degree centrality, we calculated a focal firm's centrality in the market-engagement network by summing up all other firms' market engagements with the firm. In addition, we controlled for executive industry tenure, or the number of years working in the airline industry.[7]

We used the same disparity measures of the above four organizational traits as controls in predicting change in market share gap. We believe that more experience, larger size, a greater amount of slack resources, and better past performance imply stronger capability to compete and may thus increase the likelihood of gaining more market share relative to a rival. In addition, we controlled for operational similarity between airlines, as reflected in their fleet structures. Operational similarity captures the extent to which a rival uses the same types of aircraft that the focal firm uses in its operations (please see Chen et al. [2007] for a detailed description).

Because a firm's ability to gain more market share relative to a rival depends on how big the initial market share gap was between the two firms, we also controlled for *route market share disparity*, calculated by dividing the market share gap between a focal firm and a given rival in 1990 by their combined market share for the same year.

Analysis

We used the multiple regression quadratic assignment procedure (MRQAP) to model competitor acumen at the dyadic level of analysis. This is a regression analytical technique specifically designed for dealing with autocorrelation in dyadic data (Krackhardt, 1988; Tsai, 2002). To check the robustness of our results, we performed additional analyses using

[6] Difference scores are likely to have some limitations when applied to traditional regression analysis because of their distribution (please see Edwards and Parry [1993] for a review). The analytic techniques used in our study are not constrained by the distribution of difference scores. We also performed additional analyses, replacing our controls with nondifference scores; the pattern of results concerning our independent variables remained the same.

[7] In our questionnaire, respondents were asked to provide information about industry tenure by year range. We used the midpoint of the range to convert the ordinal scale into a number of years, which was coded as "less than 10 years" = 5, "11 to 20 years" = 15, "21 to 30 years" = 25, and "more than 30 years" = 35.

generalized least squares (GLS) random-effects regression. The pattern of results of these additional analyses is the same as those shown in our MRQAP analysis.

To model relative market share gain, or change in the market share gap between any pair of firms over multiple routes, we focused on the dyad-market level of analysis. Because our data comprised multiple observations from each focal firm in a given route, there was the potential for problematic interdependence among the error terms. For example, if a focal firm was present with three other players (or rivals) in a route, then there were three observations in our study that involved the same focal firm in the same route. To address this issue, we used the fixed-effects models to control for the firm-specific and route-specific unobserved heterogeneity (Green, 2003). Any characteristics of firm and route that do not vary in a route cannot be included in a model because these route-invariant and firm-invariant predictors have identical values in each focal firm's multiple records. In addition, we included a set of dyadic variables to control for the statistical dependencies associated with dyadic observations. We also estimated the random-effects models, and the results were very similar to those of the fixed-effects models. However, the Hausman test suggests that the fixed-effects estimates may be more appropriate and thus report those here.

RESULTS

Table 1 reports means, standard deviations, and correlations for the key variables used in this research. As shown in Table 1, both relational and structural competitive embeddedness are positively correlated with competitor acumen, providing some initial support for our argument concerning the market antecedents of competitor acumen.

Table 2 shows the results from the MRQAP regression that uses firm dyad variables to predict competitor acumen. As shown in model 4 in the table, the coefficients for both relational and structural competitive embeddedness were positive and statistically significant at the .05 level. These results suggest that a focal firm's relational and structural competitive embeddedness with respect to a given rival is positively associated with the firm's acumen with regard to the rival. Thus, both Hypothesis 1 and Hypothesis 2 are confirmed.

Table 3 presents a series of GLS regression models predicting a focal firm's market share gain relative to a given rival. Model 1 is the baseline model that includes control variables only. Models 2 through 5 report the effects of competitor acumen and resource deployment capability on relative market share gain after the controls are added. In particular, model 4 shows that the coefficient of a focal firm's acumen is positive and statistically significant ($p < .001$) after the target firm's acumen and the focal firm's resource deployment capability have been controlled for. This finding suggests that a focal firm has a better chance of gaining more market share relative to a given target rival if the focal firm has a more accurate perception of the rival's prioritization of competitors. Thus, Hypothesis 3 is supported. Model 4 also reveals that resource deployment capability has a significant, positive impact on a firm's relative market share gain. Furthermore, model 5 shows that the interaction term between competitor acumen and resource deployment capability is positive and statistically significant ($p < .05$). Figure 1 plots the interaction effect. As shown in the figure, resource deployment capability is more positively associated with relative market share gain when competitor acumen is high. Thus, Hypothesis 4 is also supported.

TABLE 1
Descriptive Statistics and QAP Correlations[a]

Variable	Mean	s.d.	1	2	3	4	5	6	7	8
1. Focal firm's competitor acumen	0.57	0.20								
2. Relational competitive embeddedness	0.04	0.04	.35*							
3. Structural competitive embeddedness	0.30	0.20	.36*	.38†						
4. Centrality	0.45	0.34	.20*	.17†	.10					
5. Age disparity	1.65	1.74	−.10	.02	.01	−.03				
6. Size disparity	3.21	5.69	.01	−.08	−.13	−.51**	−.07			
7. Performance disparity	1.00	0.08	.10	.02	.14	−.08	.01	−.14		
8. Slack resource disparity	1.10	0.50	−.10	−.20†	−.09	−.08	−.26	.37†	−.09	
9. Executive industry tenure	21.11	9.94	−.04	.18†	.09	.09	.17	−.11	.14	−.11

[a] $n = 72$, except for variable 1, for which $n = 70$ dyads because of a missing value.
† $p < .10$
* $p < .05$
** $p < .01$

TABLE 2
Results of QAP Regression for Competitor Acumen[a]

Variable	Model 1	Model 2	Model 3	Model 4
Age disparity	−0.011	−0.010	−0.011	−0.010
Size disparity	0.008†	0.007	0.009*	0.008†
Performance disparity	0.359	0.351	0.252	0.272
Slack resource disparity	−0.071	−0.043	−0.064	−0.047
Executive industry tenure	−0.001	−0.002	−0.002	−0.002
Centrality	0.180†	0.145†	0.166†	0.145†
Relational competitive embeddedness		1.532*		1.051*
Structural competitive embeddedness			0.317**	0.244*
Constant	0.228	0.189	0.246	0.215
R^2	.11**	.20**	.22**	.25**

[a] $n = 70$.
† $p < .10$
* $p < .05$
** $p < .01$

DISCUSSION

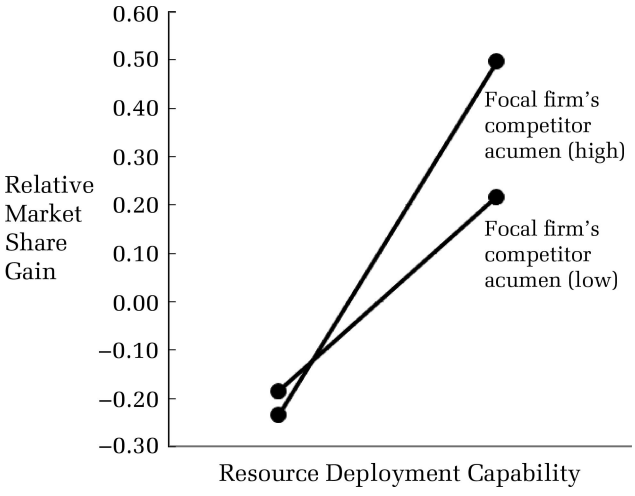
Competitor analysis has placed significant emphasis on the importance of identifying and understanding rivals. A number of scholars have examined this topic by taking into account a firm's perceptions (Porac et al., 1995; Reger & Huff, 1993) with regard to its rivals. To truly know an opponent, however, a firm needs to stand in that opponent's shoes and understand how it thinks or set priorities—that is, a firm needs to be able to comprehend its rival's view of competition. Where previous research on interfirm competition takes a dyadic approach, considering each of a firm's rivals differently (e.g., Chen et al., 2007; Derfus, Maggitti, Grimm, & Smith, 2008; Ferrier, 2001), we go a step further by considering each rival's perception of its key competitors as the foundation for a focal firm's formation of competitive strategy. We demystify the rival by directly incorporating its prioritization of competitors into our analysis.

TABLE 3
Results of Fixed-Effects Regression Analyses: Effect of Acumen on Change in Market Share Gap[a]

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Route market share disparity	0.227***	0.265***	0.233***	0.267***	0.267***
Age disparity	−0.087***	−0.090***	−0.076***	−0.080***	−0.080***
Size disparity	−0.008	−0.005	−0.019	−0.017	−0.013
Performance disparity	1.415***	1.127***	1.344***	1.089***	1.082***
Operational Similarity	0.371*	0.344	0.470*	0.446*	0.453*
Slack resource disparity	−0.117*	−0.166**	−0.009	−0.057	−0.050
Relational competitive embeddedness	−1.343***	−1.208**	−1.640***	−1.512***	−1.527***
Structural competitive embeddedness	1.160***	1.175***	1.163***	1.174***	1.183***
Resource deployment capability		0.053***		0.047***	0.052***
Target firm's competitor acumen			−0.092†	−0.081	−0.089†
Focal firm's competitor acumen			0.280***	0.267***	0.270***
Resource deployment capability × focal firm's competitor acumen					0.066*
Constant	−1.567***	−1.237***	−1.726***	−1.427***	−1.246***
F	145.18***	129.51***	117.31***	107.01***	98.27***
Hausman test (χ^2)	241.92	269.48	266.57	303.02	297.69
Likelihood-ratio test (vs. model 1)		40.97	86.49	118.71	129.26

[a] $n = 26{,}485$. All models were estimated using robust standard errors.
* $p < .05$
** $p < .01$
*** $p < .001$

FIGURE 1
Interaction between Competitor Acumen and Resource Deployment Capability



The Promise of the Competitor Acumen Framework

The framework of competitor acumen advanced and tested in this study contributes to research on competitor analysis and competitive dynamics (Derfus et al., 2008; Ferrier, 2001; Smith et al., 2001) and reinforces the theoretical link between these two related but distinct lines of work (Chen, 1996). Specifically, the construct of competitor acumen highlights the role of perception in competitor analysis. Previous studies on competitive perceptions have mostly centered on a focal firm's perceptions of its competitors (e.g., Porac et al., 1995) or on comparing the differences between direct competitors (e.g., Bloodgood & Bauerschmidt, 2002). Although such perceptions provide some useful baseline information for competitor analysis, they are prone to incur such concerns as subjective biases (Zajac & Bazerman, 1991). More important, prior work has stopped one step short of explicitly taking into account target rivals' own perceptions.

The conceptualization of competitor acumen relies on a comparison between a focal firm's perceptions of a target rival's evaluations of its competitors and the rival's own assessments (Venkatraman & Ramanujam, 1987). This approach reinforces and expands the "relative" view that underlies competitive dynamics and competitor analysis research (Chen, 1996; Chen & Hambrick, 1995). By considering the perceptions of both focal firm and target rival(s) and examining how their perceptions differ, we are able to develop a finer-grained and more valid understanding of each rival's respective evaluation of competition.

Indeed, the ultimate aim of competitor analysis is to place a firm in the shoes of a rival and attempt to discern the rival's competitive priorities and intentions (Amit et al., 1988). We contend that a valid assessment of a rival requires comprehending the rival's own perception of who its main competitors are and the relative importance of each. Unlike competitive dynamics research (Chen & MacMillan, 1992; Derfus et al., 2008), which focuses on a rival's actions, research centered on competitor acumen delves deeply into the rival's perceptions. Before a firm is able to predict a rival's offensive and defensive moves sensibly, it needs to have clear insight into the rival's perception, even if the perception could be biased or not correspond to the reality, because the rival's perception of its own competitors is likely to drive its actions (Dutton & Jackson, 1987).

The promise of competitor acumen is highlighted by our findings regarding its effects on the dynamics of market share changes between a pair of firms. Our study shows that firm with a larger (or smaller) market share with a high level of competitor acumen with regard to a target rival is likely to increase (or decrease) the share gap between itself and the rival. This finding highlights the significance of the competitor acumen construct for competitor analysis and competitive dynamics research. Our empirical evidence suggests that having sound judgment of a rival's priorities in competition is instrumental to winning a competitive race. We argue that a focal firm with high acumen with respect to a given rival has a good understanding of the rival and can correctly predict the rival's actions (or lack thereof), which, in turn, allows the firm to outperform the rival. But the analyses reported above do not actually operationalize a firm's ability to predict a rival's actions (or inactions). To address this concern, we performed an additional analysis predicting a dichotomized variable of pricing action (coded 1 if the focal firm lowered its price[8] without inducing price cuts by the target rival) and found that competitor acumen was a significant predictor for this new dichotomized dependent variable ($p < .01$). The result of this additional analysis suggests that a firm with high acumen with respect to a given rival is likely to find the "right" markets in which to attack the rival through price cuts without incurring retaliation. This analysis seemed to provide some evidence to support our argument. Future research might assess different scenarios of actions/inactions beyond the simple pricing action operationalized here and develop more refined

[8] We tried various definitions of pricing action, ranging from minor price cuts to price cuts of 10 percent or more made by a focal firm, and the results were very highly comparable.

measures of a firm's ability to predict a rival's actions (or inactions).

Moreover, this research contributes to the social network literature by showing how an interconnected system of market-engagement relationships represents an important network that influences competitor acumen. Recent research in social networks has called for more empirical studies that link networks and cognition (e.g., Kilduff & Tsai, 2003). The structure of a network affects perceptions of individual actors in the network (Ibarra et al., 2005; Kilduff, Tsai, & Hanke, 2006). In keeping with the results in previous studies on cognitive networks at the interpersonal level (Krackhardt, 1990), our finding concerning the effect of structural competitive embeddedness shows the importance of network structure in shaping perceptions, even though we focus on the interfirm level in a context that is quite different from that examined in previous studies. By showing that network structure is an important factor in explaining how competitor acumen is developed, we add to the social network literature by revealing the influences of network embeddedness on interfirm competition (Gnyawali & Madhavan, 2001).

Finally, our work extends the traditional capability-based arguments (Adner & Helfat, 2003; Eisenhardt & Martin, 2000; Teece et al., 1997) by providing a refined, comparative conceptualization at the dyadic level that links dynamic capability and competitive dynamics research. We show that a firm's competitor acumen enhances the effect of its resource deployment capability on its relative market share gain. We also emphasize that competitor acumen is specific to each firm-rival dyad in which a focal firm is engaged. Our study, together with that of Sirmon et al. (2008), provides evidence and support for the significance of managerial dynamic capability (e.g., Adner & Helfat, 2003) in interfirm competition. Our research shows potential network or embeddedness effects, and Sirmon et al.'s (2008) study reveals managerial effects such as knowledge of competitors and management of resources. These two complementary studies link the competitive dynamics and dynamic capability literatures and highlight the role of resource deployment capability in dyadic competition.

To show further the distinctiveness of such a dyad-level capability, we decomposed the error components of the acumen scores into between-firm and within-firm variances and calculated the intraclass correlation (Shrout & Fleiss, 1979) to assess the "closeness" of the observations on the same firm relative to the closeness of observations on different firms. The estimated intraclass correlation is 0.0036, indicating that the proportion of the total variance due to the firm level effect is less than 1 percent. This result shows that there is high variance with respect to a firm's scores on acumen toward different rivals, suggesting that competitor acumen is a dyad-level, rival-specific capability.

In this research, we considered competitor acumen a moderator for the relationship between resource deployment capability and relative market share gain. Methodologically, the interaction between acumen and resource deployment capability can also support the idea that resource deployment capability moderates the relationship between competitor acumen and relative market share gain. Given that we propose acumen as a new construct and that prior research has shown the significance of resource deployment capability in terms of endpoint market shares in the airline industry (Borenstein, 1989: Gimeno, 1999), we chose acumen as a moderator and considered the relationship between resource deployment capability and relative market share gain as a baseline to be extended in our theoretical model.

Limitations and Future Directions

Our sample for the firm-dyad analysis of competitor acumen was somewhat small, mainly because of the difficulty of getting responses from qualified senior executives to a survey on highly sensitive strategic information concerning their firms' perceptions of, and relationships with, direct rivals. We managed to secure only a sufficient number of credible respondents responsible for strategic decision making who were willing to share this sensitive information and provide informed assessments. In addition, we focused on competitor acumen at only one point in time. In the future, it will be useful to conduct multiple surveys to build a longitudinal database of changes in competitive perceptions and develop a dynamic model of competitor acumen. The data used in our study, despite the meticulousness with which they were collected, were gathered some time ago, and we were constrained by not being able to collect new perceptual data. The relevance and significance of the issues under investigation, however, would not seem to have diminished over the years. Whereas a firm's acumen with regard to a given rival may increase or decrease over time, the effect of acumen on market outcomes is likely to hold or even grow stronger; thus, we believe that competitor acumen is even more important in today's dynamic, intensely competitive environment (Thomas & D'Aveni, 2009).

Moreover, central to our consideration of competitor acumen is the comparison between a given perception and a benchmark. Chen et al. (1993) showed how to evaluate the degree of "expertness" among various groups of outside informants by comparing their ratings of competitive moves with the "true" ratings of inside executives. In this research, we treat

a target rival's perceptions of competitors as benchmarks because the main objective here is to understand the rival's prioritization of its own competitors. Future research may choose to make use of other benchmarks based on objective indicators or ratings of industry experts.

Indeed, a notable merit of our study is the availability of highly sensitive information about a rival's prioritization of its competitors provided by the rival's senior executives. Such information provided us with the opportunity to use the perceptions of these true insiders to construct the competitor acumen measure. In reality, it may be challenging, if not impossible, to gather such firsthand, reliable information directly from informed insiders of a rival under consideration. Nonetheless, it is possible to use different sources of information to help a focal firm estimate its respective rivals' perceptions of their competitors. There are numerous possible sources of insight into a rival's perceptions, as shown in Chen et al.'s (1993) work comparing diverse groups of external experts on a firm, using the firm's senior executives' opinions as benchmarks. Such sources include former employees and/or key decision makers within a rival of interest, former colleagues of the rival's CEO or senior executives in charge, and the rival's informed observers, such as analysts or consultants, close suppliers, distributors, and joint venture partners. It is important to note that the challenges of getting information about insiders' perceptions make the construct of competitor acumen more appealing. The construct of competitor acumen would be unnecessary if such information were easily available, as managers could simply act in view of this information. Our research shows that firms do vary in their understanding of rivals' perceptions and that competitor acumen matters. The primary managerial implication of our research is not to show managers how to calculate their acumen scores. Instead, we demonstrate the importance of understanding a rival's perceptions and suggest that managers build acumen by managing their firms' competitive embeddedness though market engagements.

Our study could be extended in a number of other ways. For example, future scholars could examine how acumen affects competitive behavior and interfirm rivalry. A fruitful area might involve the study of how the asymmetry of competitor acumen between two firms affects the likelihood and speed of their actions and responses; another might examine how competitor acumen shapes the subsequent network or structural development of market-engagement relationships. Acumen could also be extended to the study of different perceptions, and scholars could apply, for instance, the construct of competitor acumen to study the extent to which a focal firm accurately comprehends a rival's view of its own strategic goals and priorities in different functional areas (such as manufacturing, marketing, technology development, or new product launches). Such an extension would offer an enhanced understanding of cognitive accuracy in a business context and, specifically, the role of cognition in strategy formation.

We consider competitor acumen an aspect of a firm's distinctive capabilities that the firm may, over time, cultivate to increase the accuracy with which it is able to assess rivals. By focusing on competitive embeddedness as an antecedent of competitor acumen, we suggest that a firm can increase its acumen with regard to a given rival by engaging with the rival and with those who have market engagements with the rival. Clearly, there are nonmarket factors that affect managerial characteristics (such as decision makers' expertise and personal connections), and internal processes (such as training, learning, and socialization) that may help a firm cultivate its competitor acumen. Future research could examine such factors to advance understanding of how competitor acumen may be cultivated. Also, information imperfection may influence the development of acumen. However, in an industry with a small number of players, such as the airline industry, information concerning a firm's technology and promotional practices is largely available to every firm in the industry. Future research may examine the effect of information imperfection on acumen building in other industries. Moreover, competitor acumen, as a dyad-level rival-specific capability, implies that a firm may have keen comprehension with respect to certain rivals, but not others. It would be interesting to examine why a firm might be "intelligent" with respect to one opponent, but not to another, or "smart" in one situation but not in another, similar situation.

In summary, by offering a theoretical and empirical refinement of competitor analysis, the construct of competitor acumen provides an informed reflection of a firm's dyad-level capability in a competitive context. Competitor acumen is shaped by relational and structural competitive embeddedness and has a significant impact on the change in the market share gap between a pair of firms. Our study advances extant work on competitor analysis and bridges competitive dynamics and a cognitive approach to strategy research.

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APPENDIX A

An Illustration of Competitor Acumen Calculation

In the following table, the first row shows Continental Airlines' (COs') top five competitors, as ranked by its executives. The 5 under the UA column means that CO considered United Airlines (UA) its top-ranked competitor; the 4 under column AA means that American Airlines (AA) was rated as CO's second-place competitor, etc. The second row shows the rank order of Continental Airlines' top five competitors rated by another executive from a rival firm, Southwest Airlines (WN). In other words, the first row represents CO's own assessment of its top five competitors, whereas the second row represents WN's assessment of CO's top five competitors. We then calculated the squared difference between the corresponding entries for the two assessments. The dissimilarity measure (or Euclidean distance) is obtained by taking the square root of the sum of the squared difference ($\sqrt{4} = 2$). This score will be small to the extent that WN can accurately identify and rank CO's top five competitors.

The table also illustrates some possible values of the dissimilarity measure in several hypothetical situations. The maximum score of 10.488 is observed when a firm failed to identify any one of CO's top five competitors, as indicated by firm A. Although firm B successfully identified CO's top five competitors, it failed to assign the correct rank order, resulting in a medium-level dissimilarity score. The dissimilarity measure will reach the minimum of 0 only when the two assessments are exactly identical, as indicated by firm C's assessment of CO's competitors.

The empirically observed maximum and minimum for the dissimilarity measure in our sample were 7.48 and 1.027, respectively. We then reversed and rescaled each dissimilarity score by a linear transformation (7.483 − distance)/(7.483 − 1.027) to obtain the acumen scores. For example, the acumen score of WN's assessment of CO's competitors becomes (7.483 − 2)/(7.483 − 1.027) = 0.849. Scores range from 0 to 1, reflecting gradations of competitor acumen.

TABLE A1
Continental Airline Rates Its and Other Firms' Top Five Competitors

Row#	Rater	AA	AS	CO	DL	HA	HP	ML	NW	PA	TW	UA	US	WN
1	Continental (CO)	4	0	0	0	0	0	0	2	0	1	5	0	3
2	Southwest (WN)	5	0	0	0	0	1	0	2	0	0	4	0	3
3	Firm A	0	0	0	5	0	1	2	0	3	0	0	4	0
4	Firm B	2	0	0	0	0	0	0	4	0	5	1	0	3
5	Firm C	4	0	0	0	0	0	0	2	0	1	5	0	3

WN-CO dissimilarity = $\sqrt{[\Sigma(\text{row } 1 - \text{row } 2)^2]} = \sqrt{(1 + 0 + 0 + 0 + 0 + 1 + 0 + 0 + 0 + 1 + 1 + 0 + 0)} = 2$.
Firm A-CO dissimilarity = $\sqrt{[\Sigma(\text{row } 1 - \text{row } 3)^2]} = 10.488$.
Firm B-CO dissimilarity = $\sqrt{[\Sigma(\text{row } 1 - \text{row } 4)^2]} = 6.325$.
Firm C-CO dissimilarity = $\sqrt{[\Sigma(\text{row } 1 - \text{row } 5)^2]} = 0$.

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