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INTERFIRM RELATIONAL RIVALRY: IMPLICATIONS FOR COMPETITIVE STRATEGY

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In this article I seek to apply findings from recent research on rivalry relationships to firm-level competitive strategy. I integrate microlevel and macrolevel theory in arguing that certain pairs of firms can, over time, develop rivalry relationships much like those between athletic teams or universities. In turn, these rivalry relationships can drive firms' competitive behavior above and beyond current market and competitive conditions (such as resource similarity or market overlap between firms). I then connect the relational rivalry literature and competitive dynamics literature and put forth a series of propositions centered on how relational rivalry between firms affects their competitive moves vis-à-vis one another. In doing so I aim to contribute to competitive strategy research by exploring social psychological and sociological factors, particularly by emphasizing the importance of pairs of firms' histories of interaction in driving future competitive action. This work also extends the existing literature on relational rivalry by pointing to institutionalization as a key difference between interfirm and interindividual relational rivalry and by examining the consequences of relational rivalry for macro-level strategic and competitive decisions.

> I'm going to beat Chevrolet on the head with a bat. And I'm going to enjoy it . . . I hate them and what they stand for (Jim Farley, former head of global marketing, sales, and service at Ford Motor Company, in Sedgwick, 2011).

> To kill Microsoft—that's the top priority for us (Scott McNealy, former CEO of Sun Microsystems, in Rivlin, 1999: 145).

Competition between firms is ubiquitous. The business press often depicts interfirm competition as driven, at least in part, by grudges, egos, rivalries, and other social psychological and relational factors. For example, Yankee Group Analyst Sheryl Kingstone described the competition between software companies and long-time foes Siebel Systems and Salesforce as "more emotional than revenue-driven" (Gilbert, 2003), and in 2013 *Fortune* published "The 50 Greatest Business Rivalries of All Time," describing stories of intense competitive episodes from the distant past that apparently continued to influence competition in the present.

By contrast, in academic research on interfirm competition, scholars have generally taken a "colder" and more rational approach, depicting organizations and their leaders as systematically weighing current costs and benefits and objectively evaluating threats, opportunities, and potential strategic actions (e.g., Chen, 1996; Porter, 1980). Thus, there remains substantial room for the exploration of how less rational factors, especially those based in social psychological and relational phenomena, affect interfirm competitive strategy (Gnyawali & Madhavan, 2001; Kilduff, Elfenbein, & Staw, 2010; Livengood & Reger, 2010).

In this article I build on work on managers' subjective perceptions of competition (e.g., Chen, Su, & Tsai, 2007; Kaplan, 2011; Porac & Thomas, 1994; Porac, Thomas, Wilson, Paton, & Kanfer, 1995) and on the dyadic approach to interfirm competition taken in the competitive dynamics literature (e.g., Chen, 1996; Chen & Miller, 2012; Ferrier, 2001) to explore how findings from recent research on rivalry relationships (e.g., Converse & Reinhard, 2016; Kilduff et al., 2010; To, Kilduff, Ordoñez, & Schweitzer, 2018) may inform firm-level competitive strategy. In doing so I hope to make theoretical contributions to multiple bodies of literature. First, I seek to address the relative lack of research exploring social psychological and sociological factors in interfirm competitive strategy, especially within competitive dynamics (Livengood & Reger, 2010), and I particularly argue for the role of shared history between firms in driving their competitive moves and strategic decisions. Second, I

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contribute to the relational rivalry literature by exploring how interfirm relational rivalry can become institutionalized and by exploring its potential effects on a new category of important outcomes—firms' competitive moves.

This article is organized as follows. First, I begin by reviewing the recent literature on rivalry relationships and compare and contrast the concept of relational rivalry with existing treatments of competition and rivalry in strategy. Second, I discuss the potential for the institutionalization of rivalry relationships between firms and how this may represent a key difference between interfirm relational rivalry and interindividual relational rivalry. Third, I integrate the relational rivalry literature with the competitive dynamics framework and put forth a series of propositions about how relational rivalry will affect the quantity and nature of firms' competitive moves. This includes a brief review of the competitive dynamics literature and forms the bulk of my theoretical contribution. I end by describing a range of potential directions for future research. A detailed discussion of how to measure interfirm relational rivalry is included in the appendix.

RELATIONAL RIVALRY

Competition generally has been defined as a situation that exists when the outcomes or goals of actors are opposed—that is, as a situation of negative interdependence—such that the gain of one comes at the loss of the other (e.g., Deutsch, 1949; Scherer & Ross, 1990). Thus, competing firms are those that are currently vying for the same scarce resources or outcomes (e.g., market share; Chen, 1996), commonly identified by strategy researchers as those within the same industry or market (e.g., Porter, 1980) or subsegment of an industry (i.e., "strategic group"; McGee & Thomas, 1986).

Within strategy, the word "rivalry" is often used interchangeably with "competition" (e.g., Cool & Dierickx, 1993; Katila & Chen, 2008; Mas-Ruiz, Ruiz-Moreno, & Ladrón de Guevara Martínez, 2014; Nadkarni, Pan, & Chen, 2019; Yu & Cannella, 2007) or to refer to the enactment of competitive behavior, such as entering another firm's markets, cutting prices, or attempting to claim its customers (e.g., Chen, 1996; Rindova, Becerra, & Contardo, 2004). These conceptualizations tend to focus on objective aspects of the situation (market) and/or firms' behaviors and on the current point in time. Consequently, researchers studying interfirm competition generally have favored objective and cognitive approaches, largely to the exclusion of examining the roles of relational, social psychological, sociological, and historical factors in driving competitive behavior.

In contrast to this work, one of the primary goals of the literature on rivalry relationships has been to draw a distinction between rivalry and more general, nonrival competition in order to provide for a more relationally dependent analysis of competition (Kilduff et al., 2010). At least as it's used in layman's terms, rivalry is more than just negative outcome interdependence or current enactment of competitive behavior. For example, the widely recognized rivalries between IBM and Apple, Intel and AMD, Ford and GM, and Oxford and Cambridge would each seem to represent much more than just a current state of conflicting goals or competition for market position. In each there exists a relationship based in a rich history of interaction between the organizations. To account for this, this recent literature has conceptualized rivalry as a relationship a focal competitor has with a target competitor—formed by the experiences of similarity and repeated and evenly matched competition over time—that heightens the subjective stakes of competition for the focal competitor, independently of the objective characteristics of the situation, such as tangible stakes (Converse & Reinhard, 2016; Kilduff et al., 2010; Kilduff, Galinsky, Gallo, & Reade, 2016). Competitors can include individuals, groups, or organizations; rivalry relationships can vary in strength from mild to intense; and it is possible for a given competitor to have multiple rivals. Further, this definition intentionally leaves open the possibility of asymmetric or unreciprocated rivalry, which existing empirical evidence suggests is less common but does exist (Kilduff et al., 2010; this is a topic I return to in the general discussion).

To avoid confusion with existing work in strategy in which scholars use the term *rivalry*, I will henceforth use "relational rivalry" to refer to this literature and the phenomenon studied and "structural competition" to refer to negative outcome interdependence. In this article I focus specifically on relational rivalry between firms, or "interfirm relational rivalry." This is not a new construct; rather, it is an application of the existing relational rivalry concept to pairs of firms.

Structural competition is a prerequisite for relational rivalry to form (Kilduff et al., 2010). However, the two differ from each other in some important ways. Structural competition is a situation at a given point in time, and the significance of one competitor versus another is driven by the level of objective threat each poses to the focal actor's goals; as a result, competitors are often interchangeable with one another. By contrast, a relational rival is a specific, identifiable opponent with whom the focal actor has an existing subjective relationship that drives significance, independently of the current situation; indeed, competitors that have rivalry relationships interact in reliably different ways than competitors who lack these relationships, holding tangible stakes constant (Kilduff et al., 2016). Further, as a relationship, relational rivalry is both historical and ongoing. Given that interactions are fundamental to the development of relationships, relational rivalry is in part a product of competitors' history of prior interactions and cannot be fully captured simply by examining the situation as it stands now. Indeed, recent research shows that contests between relational rivals are perceived as embedded in a long-running narrative that reaches back into the past and extends into the future, whereas contests against nonrivals are viewed more as one-shot, independent events (Converse & Reinhard, 2016).[1] This is a critical distinction; structural models of competition do not account for history, implicitly assuming that it does not matter. Also, relational rivalry, once it has formed, may continue to exist even outside structural competition.

Related Research

Managerial perceptions. This concept of relational rivalry, as applied to pairs of firms, builds on important bodies of research within strategy and organization theory. First, research has increasingly spoken to the importance of managers' subjective perceptions of competition. Managers' perceptions of their firms' primary competitors have been found to diverge from the objective market indicators previously thought to define interfirm competition (e.g., Porac & Thomas, 1994; Porac, Thomas, & Baden-Fuller, 1989; Porac et al., 1995; Reger & Palmer, 1996; for a review see Kaplan, 2011), and to predict important firm-level behaviors above and beyond objective measures of competition (Chen et al., 2007).[2] This literature represents a significant step forward in exploring the role of psychological factors in interfirm competition—specifically, departures from rationality resulting from limits in managers' cognitive capacity. However, managers, as humans, are also subject to various social psychological impulses, motivations, and emotions, which may affect firm behavior, in addition to their cognitive limitations and biases. Indeed, the literature on top management teams and CEOs has shown that the dispositions, emotions, and motivations of top managers can affect firm outcomes (e.g., Chatterjee & Hambrick, 2007; Delgado-Garcia & de la Fuente-Sabate, 2010; Hambrick & Mason, 1984; Hayward & Hambrick, 1997; Hayward, Rindova, & Pollock, 2004; Hiller & Hambrick, 2005; Miller & Dröge, 1986; Resick, Whitman, Weingarden, & Hiller, 2009; Wade, O'Reilly, & Pollock, 2006). This article therefore builds on the literature on managerial perceptions of interfirm competition by exploring an additional potentially nonrational determinant of firm behavior, based in social psychological and sociological forces rather than purely cognitive ones.[3]

Competitive dynamics. I also build on and connect to the competitive dynamics literature (Baum & Korn, 1996; Chen, 1996; Chen & Miller, 1994; Chen, Smith, & Grimm, 1992; Ferrier, 2001; for a review see Chen & Miller, 2012), which significantly advanced research on interfirm competition by focusing on the firm dyad as the unit of analysis, rather than the industry, market, or strategic group (Chen & Miller, 2015). This facilitated the exploration of dyadic antecedents of firms' competitive moves, including market overlap (Baum & Korn, 1996; Chen, 1996), relative size

[1]It is worth noting that this relational view of rivalry also diverges from some micro and macro work in which scholars use the term *rival* to refer simply to competitors of currently similar rank or position (Bothner, Kang, & Stuart, 2007; Garcia, Tor, & Gonzalez, 2006).

[2]This distinction between objective competition and subjective competitive perceptions mirrors a divide that exists in strategy more generally—between the objective or industry structure approach and the subjective cognitive or interpretative approach (for a review see Nadkarni & Barr, 2008).

[3]Also see Cabral (2018) for a simulation-based exploration of a nonrational driver of interfirm competition: the desire to be in first place.

(Chen et al., 2007), and resource similarity (Chen, 1996), and represented a major step toward a relational model of interfirm competition. I extend this work by examining the role of firms' relational histories in driving their competitive behavior toward each other. Except for a few notable exceptions (e.g., Lamberg, Tikkanen, Nokelainen, & Suur-Inkeroinen, 2009), research in competitive dynamics has largely ignored historical factors, focusing instead on current (or very recent) exchanges of competitive moves between firms (e.g., Chen et al., 2007), firms' current relative characteristics (Chen & Miller, 2015), and current market conditions (Chen, 1996). Extending this work, I argue that firms' competitive decisions are embedded within and influenced by their historical relationships with competing firms, just as they are embedded within their networks of cooperative relationships with other firms (Gnyawali & Madhavan, 2001).

History and mutual forbearance. In focusing on pairs of firms' relational histories, I also build on other work in organization theory and strategy that has recognized the importance of history in driving organizational action, primarily the history of individual organizations, captured by such concepts as organizational memory (e.g., Walsh & Ungson, 1991), organizational learning (e.g., Fiol & Lyles, 1985; Levitt & March 1988), imprinting (Baron, Hannan, & Burton, 1999; Stinchcombe, 1965), historical aspirations (e.g., Fiegenbaum, Hart, & Schendel, 1996; Greve, 1998), and the Red Queen effect, which refers to the fact that firms' current competitive fitness may in part depend on their historical experience with intense competition (Barnett & Pontikes, 2005). One body of literature that has examined interfirm relationships over time is that on mutual forbearance, in which scholars have argued that pairs of firms engaging in multimarket competition may eventually get to a place of tacit collusion and constrain their aggressiveness toward one another (e.g., Baum & Korn, 1996; Fuentelsaz & Gómez, 2006; Gimeno & Woo, 1996; Jayachandran, Gimeno, & Varadarajan, 1999). Mutual forbearance is thought to be driven by the joint presence of deterrence and familiarity (Jayachandran et al., 1999). Deterrence exists when firm A has the capability to retaliate to competitive attack from firm B in one market by attacking firm B in a different market, and familiarity is the awareness held by firms of one another's historical likelihood of retaliation, built up over time and through repeated competition (Jayachandran et al., 1999). This work speaks to the importance of past competitive interaction between firms; however, it takes a decidedly rational approach in arguing that "firms might not compete aggressively because the expected gains from aggressive moves may be lower than the future losses due to competitive retaliation" (Jayachandran et al., 1999: 51).

By contrast, the notion of interfirm relational rivalry suggests that repeated competition over time should intensify competitive urges because of social psychological and sociological factors that operate independently of rational cost-benefit analysis (Kilduff, 2014; Kilduff et al., 2010).[4] Indeed, it is possible that both could happen: pairs of firms that have experienced continued multimarket competition over time may have developed a relational rivalry that increases the subjective stakes of competition, yet they might simultaneously constrain their visible aggressive behavior toward one another because of concerns over cross-market retaliation.

It may be helpful to illustrate the differences between interfirm relational rivalry and existing conceptions of interfirm rivalry in strategy with an example. The literature on relational rivalry would suggest that two firms with a history of competition (e.g., over market share, performance or quality ratings, and/or entry into new markets) and similar resource profiles will have developed a rivalry relationship that will exist independently of current industry conditions (Kilduff et al., 2010). Even if their current levels of market overlap and resource similarity are low, these firms will be relational rivals owing to their past experiences, and this will imbue any competition between them with added subjective stakes (which do not necessarily mirror the effects of increased economic stakes; Kilduff et al., 2016). By contrast, competitive dynamics research argues that firms with currently high levels of resource similarity and market overlap will be rivals (Chen, 1996), which would not include these hypothetical firms. The opposite example is two firms that have just recently begun competing.

[4]Similar historical effects have been examined for cooperation: the extent to which firms cooperate may depend in part on the extent to which they have engaged in such behavior in the past (e.g., Podolny, 1994).

Despite potentially qualifying as rivals within existing competitive dynamics models (Chen, 1996), they would not be considered relational rivals, no matter how large their current levels of market overlap or resource similarity, because they have not had a significant history of interaction.

This conceptualization of rivalry as inherently relational and driven by shared history was supported in a large combined survey and archival analysis of collegiate basketball programs, which found that more than 50 percent of the variance in relational rivalry between these organizations existed at the dyad level and that this was driven mainly by the organizations' prior histories of interaction rather than current conditions (Kilduff et al., 2010). Further, the importance of the relational rivalry framework has been demonstrated across a range of studies and contexts showing that actors—individuals and organizations—behave differently when competing against relational rivals as opposed to nonrivals, holding stakes and other situational factors constant (Converse & Reinhard, 2016; Kilduff, 2014; Kilduff et al., 2016; Ku, Malhotra, & Murnighan, 2005; To et al., 2018; Yip, Schweitzer, & Nurmohamed, 2018).

Antecedents of Relational Rivalry

The existing research on relational rivalry has shed light on its origins and consequences. Three primary antecedents, or factors contributing to stronger relational rivalry, have been identified at both the individual and organizational levels (Kilduff, 2014; Kilduff et al., 2010; Kilduff & Galinsky, 2017). These are not prerequisites or definitional components of relational rivalry but, rather, factors that tend to lead to its development and increase its intensity.

Similarity. The first factor that drives relational rivalry is similarity—in particular, similarity over time. A sizable body of research in social psychology indicates that similarity between competitors can amplify pressures toward social comparison and increase the relevance of the competition to their identities, thus increasing psychological involvement (e.g., Festinger, 1954; Tesser, 1988; for a brief review see Garcia, Tor, & Schiff, 2013), especially over time (Mussweiler & Rüter, 2003). These concepts of social comparison and identity have also been explored at the firm level (Greve, 1998; Livengood & Reger, 2010). Like individuals, firms tend to compare themselves and their performance to the competitors who are most similar (e.g., in terms of resource profile; Chen, 1996). Existing macro research has of course linked both current objective (Baum & Korn, 1996; Baum & Mezias, 1992; Chen et al., 2007) and perceived (Porac & Thomas, 1994; Porac et al., 1995) similarity to intensity of competition. Importantly, however, research on relational rivalry has shown that *historical* similarity drives rivalry, thus going beyond this existing research. For example, basketball programs experiencing similar levels of success over the course of their entire histories were found to be more intense relational rivals (as reported by members as well as expert respondents), above and beyond their current or recent similarity in success (Kilduff et al., 2010). Analogously, we might expect firms that have historically been similar to one another to experience higher levels of relational rivalry than current levels of similarity would suggest. This past similarity could be assessed in terms of various firm attributes, including size, resource profile, and status. I discuss measurement of past similarity and the other antecedents of interfirm relational rivalry in detail in the appendix.

Repeated competition. Repeated competition over time also contributes to greater relational rivalry (Kilduff, 2014; Kilduff et al., 2010). From a social psychological perspective, repeated competition against the same opponent can cause competitive feelings toward that opponent to escalate (Kilduff, 2014) in a process analogous to the "mere exposure" effect, in which repeated exposure to a stimulus results in increasingly strong attitudes toward the stimulus (Brickman, Redfield, Harrison, & Crandall, 1972; Zajonc, 1968). At the firm level, two firms that repeatedly compete over time may similarly place greater and greater importance upon outperforming one another, as opposed to their absolute performance. Repeated competition between firms could be assessed by the volume of competitive moves exchanged in the past or by the length of time that firms have operated in the same markets, to provide two examples. As with similarity, research on relational rivalry suggests that historic repeated competition is more important in driving relational rivalry than recent frequency of competition (Kilduff et al., 2010).

Historic evenly matched competition. Beyond the frequency or duration of past competition, the extent to which competition has historically been evenly matched predicts stronger relational rivalry (Kilduff, 2014; Kilduff et al., 2010). This can occur because of the increased rumination and emotional reactions that closely decided contests (e.g., a very narrow defeat) elicit (Kahneman & Miller, 1986; Medvec, Madey, & Gilovich, 1995; Medvec & Savitsky, 1997), which may make these experiences live on in the minds of competitors, or become "imprinted." Past evenly matched performance between firms could be assessed by various metrics, including market share (e.g., Greve, 1998), return on assets (e.g., Kuusela, Keil, & Maula, 2017), and return on sales (e.g., Audia, Locke, & Smith, 2000).[5]

Overall, then, firms that have been similar, have repeatedly competed, and have been evenly matched *in the past* should experience stronger interfirm relational rivalry, and it is this focus on the past that differentiates these ideas from existing work on interfirm competition that has already highlighted the roles of various forms of similarity and frequency of competition in driving competitive perceptions and behavior (e.g., Chen, 1996; Porac et al., 1995; Porter, 1980). It is worth noting that existing research on relational rivalry has operated under the assumption that these factors combine additively to generate greater relational rivalry (e.g., Kilduff, 2014), and the initial empirical evidence tends to support this; however, future research should continue to assess whether one factor is more important than the others or whether the factors might interact to drive relational rivalry in certain contexts.[6]

Consequences of Relational Rivalry

Relational rivalry has been shown to have a number of important consequences. Probably its most well-established outcome is increased motivation and effort—that is, people put forth more effort in competitions against relational rivals as compared to competitions against nonrivals, holding constant whatever is tangibly at stake. This is true of both interindividual and interorganizational rivalry. Kilduff et al. (2010) observed that in basketball games between universities that were relational rivals, there was evidence of greater team-wide defensive effort than in contests between nonrival universities. In follow-up work, individuals across various contexts—work, school, and sport—reported greater motivation when competing against relational rivals, and long-distance runners ran faster in races in which their relational rivals were present (Kilduff, 2014). Relational rivalry has also been found to mediate a positive link between competitive incivility ("trash-talking") and greater effort-based task performance in the lab (Yip et al., 2018).

Relational rivalry may also increase the likelihood of unethical behavior in the pursuit of victory. In one set of studies, members of rival universities were more likely to deceive one another, and rival soccer teams were more likely to commit unethical infractions against each other,

[5] It is worth noting that there may be some overlap between the dimensions of evenly matched competition and similarity in ability or performance. In athletics, the two can be distinguished, in part, because competition is typically separated in a series of discrete head-to-head contests (e.g., games, races). In this case, two teams might have similar ability levels, but for whatever reason their head-to-head contests have been somewhat lopsided. The distinction between similarity in performance and evenly matched competition becomes less clear among firms, which often compete more or less continuously. Similarity along characteristics such as size is differentiable from evenly matched performance, but similarity in performance may not be. Ultimately, however, this is not a major concern, since the work I hope to inspire with this article would be focused on examining the consequences of interfirm relational rivalry and would be less concerned about whether a particular measure was specifically tapping into the theoretical antecedent of past similarity, past evenly matched past competition, or both.

[6] A recent article provides initial evidence for "trash-talking" as an additional contributing factor to relational rivalry between individuals (Yip et al., 2018). Specifically, the expression of competitive incivilities was found to be successful in eliciting moderate levels of relational rivalry. This suggests that, at the organizational level, disparaging public comments, advertisements, or other publicity stunts intended to humiliate or damage the reputation of a competing firm may serve as an additional driver of interfirm relational rivalry. Indeed, if they are notable enough, such incidents may become organizational myths or stories (Martin, Feldman, Hatch, & Sitkin, 1983), much like episodes of particularly evenly matched competition. As an example, Virgin Atlantic and British Airways have often sparred in the media and exchanged publicity stunts intended to humiliate one another, such as when Richard Branson flew a blimp emblazoned with the phrase "BA can't get it up" when the British Airways–sponsored "London Eye" project (a giant Ferris wheel that would be part of New Years 2000 celebrations) was delayed because of an inability to lift it off the ground (Ruddick, 2016).

controlling for current stakes and objective competition (Kilduff et al., 2016). Relational rivalry has also been linked to risk taking: individuals and football teams were found to engage in increased risky behavior when competing against relational rivals as compared to nonrivals, again holding objective competition constant (To et al., 2018). Finally, decision makers have been found to act more "eagerly" when competing against their relational rivals, favoring taking rapid action over deliberation (Converse & Reinhard, 2016).

Researchers have also begun to uncover the intrapsychic experience of relational rivalry and the nature of the heightened subjective stakes that accompany it. Competition against relational rivals has been found to carry greater implications for individuals' sense of self-worth and status (Kilduff et al., 2016) and for organizational members' sense of their organizations' competitive legacies (Converse & Reinhard, 2016). Relational rivalry has also been shown to increase the physiological arousal (e.g., heart rate) of individual decision makers, as well as their *promotion focus*, or the extent to which they focus on pursuing ideal outcomes (Crowe & Higgins, 1997; Higgins, 1997), and both of these mediate the effect of relational rivalry on risk taking (To et al., 2018).

INSTITUTIONALIZATION OF INTERFIRM RELATIONAL RIVALRY

To date, theory underlying the relational rivalry construct and its antecedents and consequences has drawn primarily from the field of psychology, and scholars have tended to assume that relational rivalry operates similarly at the interindividual and interfirm levels. Although the findings mostly support this assumption (e.g., Kilduff et al., 2010; Kilduff et al., 2016; To et al., 2018), greater consideration of how individuals' psychological processes can aggregate to affect firm-level outcomes, and any important differences between interindividual and interfirm relational rivalry, is needed.

One way psychological processes within individuals can affect firm behavior and outcomes is via the decisions made by key individuals, including leaders, founders, and boundary spanners (Staw & Sutton, 1993). This perspective is supported by work linking CEO and top management team characteristics to various firm outcomes (e.g., Delgado-Garcia & de la Fuente-Sabate, 2010; Hayward & Hambrick, 1997; Miller & Dröge, 1986) and by work showing that these effects are moderated by the level of discretion or autonomy afforded to top managers (Crossland & Hambrick, 2007; Finkelstein & Hambrick, 1990; for a review see Wangrow, Schepker, & Barker, 2014), further supporting a causal link between their cognitions and motivations and organizational outcomes. Huy invoked similar arguments in support of the role of emotions in strategy: "Many strategic contexts in which emotions likely arise, especially when experienced by large groups of people or by a few influential members such as top executives, can have important consequences for the firm's actions and outcomes" (2012: 241).

Beyond this, however, there are sociological processes and dynamics unique to organizations that may create more fundamental differences between interindividual and interfirm relational rivalry, including, in particular, institutionalization. Over time, interfirm rivalry relationships may become institutionalized, which, in turn, will reinforce and possibly even intensify them, even as individual members turn over or industry conditions change. Scott described institutions as "social structures that have attained a high degree of resilience . . . composed of cultural-cognitive, normative, and regulative elements that, together with associated activities and resources, provide stability and meaning to social life" (1995: 33). The extent to which long-standing competing organizations incorporate their competitive relationships into their organizational narratives, sagas, cultures, and myths (Bartel & Garud, 2009; Clark, 1972; Schein, 1990), as well as the language used to discuss the competition (Rindova et al., 2004), may be a key determinant of whether they become true rivalry relationships that endure.

Indeed, it is plausible that the antecedents to relational rivalry reviewed above—the experience of similarity, repeated competition, and evenly matched competition over time—could all contribute to the institutionalization of interfirm relational rivalry. Similarity and repeated competition over time will lead to repeated comparison and monitoring between pairs of firms, which could become institutionalized in monthly meetings or quarterly earnings reports, or even just in the ways that employees and managers speak to one another about company performance (i.e., relative to the relational rival). Closely decided or particularly intense competitive encounters may become ingrained in organizational myths or stories (Martin et al., 1983; Schein, 1990) and organizations' sagas and narratives (Bartel & Garud, 2009; Clark, 1972). For example, a landmark moment in the relational rivalry between Stanford University and the University of California, Berkeley came in 1982 when Berkeley won an extremely close contest in the schools' annual football game in spectacular and controversial fashion, on the last play of the game. This has become known simply as "The Play" (see https://www.youtube.com/watch?v=mfebpLfAt8g), and to this day it is still debated and part of the lore of this relational rivalry. External stakeholders and observers, such as investors and the media, could also play a role in the institutionalization of interfirm relational rivalry—if, for example, they repeatedly compared the relative performance of relational rivals and discussed them using rivalry language.

The institutionalization of relational rivalry between organizations may represent a key difference between relational rivalry at the interindividual and interfirm levels. Interindividual relational rivalries may come and go more easily and should not live on beyond the individuals involved; by contrast, institutionalized interfirm relational rivalries are apt to be quite stable and should operate largely independently of individuals. Feelings of relational rivalry toward a competing firm initially held by (perhaps just a few key) individuals may become institutionalized into organizational rituals, language, and myths and, as a result, spread to other existing members and to incoming members (e.g., via socialization; Ashforth & Saks, 1996), even after the initial individuals are gone.[7]

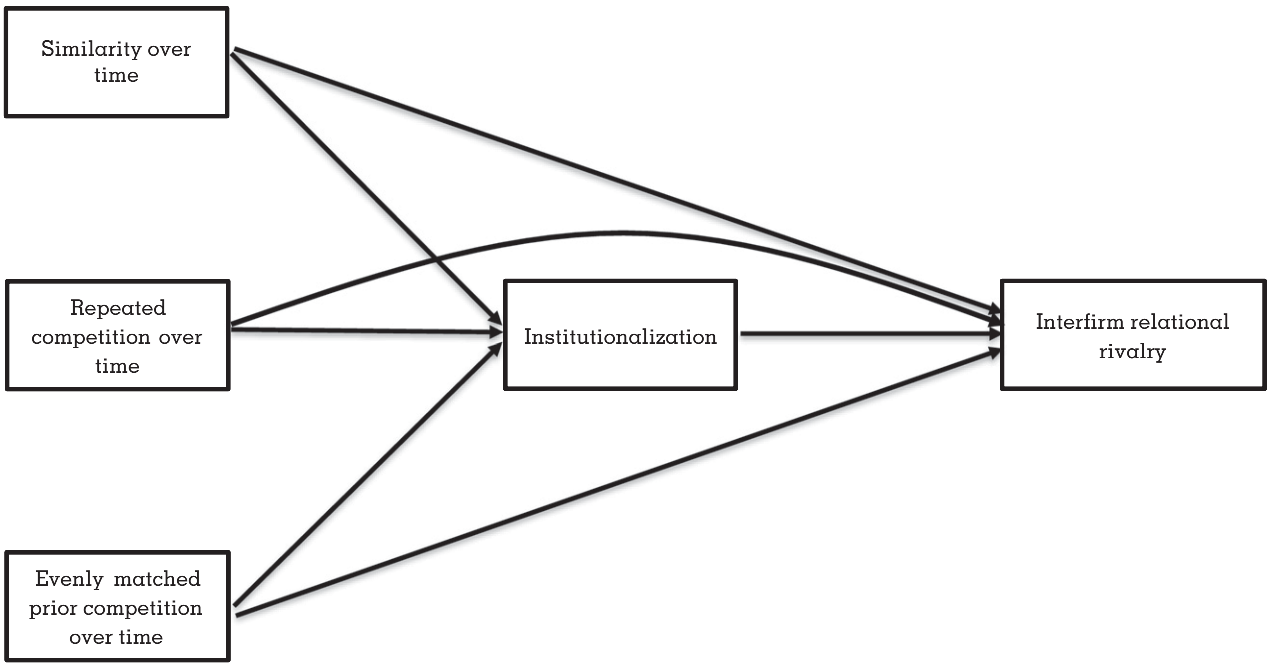
So far, empirical evidence from studies of universities supports the notion that interorganizational relational rivalry can become institutionalized, since it has been found to be quite stable even as individual members of the organizations come and go (Kilduff et al., 2010; Pike, Kilduff, & Galinsky, 2018). There are also many great examples of the institutionalization of relational rivalry in organizations' rituals, artifacts, myths, and language. The University of Texas and Texas A&M University each mention the other in their "fight songs"—sung at athletic events regardless of the opponent and even in nonathletic contexts—including much of the second half of the "Aggie War Hymn" (e.g., "Goodbye to Texas University, So long to the orange and white"; see https://www.aggienetwork.com/muster/song_warhymn.aspx). At Texas A&M the song is taught to incoming freshmen as part of "Fish Camp," a four-day socialization process that helps to maintain the university's culture, including its rivalry with Texas. The two schools began playing football against each other in 1894, and each has a unique and elaborate set of pregame traditions prior to their contests, including the Aggie Bonfire and Hex Rally (see https://en.wikipedia.org/wiki/Texas%E2%80%93Texas_A%26M_football_rivalry). Although football games between the two ceased occurring in 2011, with Texas A&M moving into a different athletic conference, the rivalry endures. Indeed, Texas students voted 97 percent in favor of reinstating football games against Texas A&M (Gibson, 2017), and Texas governor Greg Abbott recently claimed that his next goal was to restart these games (Sallee, 2017).

A nonuniversity example is the rivalry between British Airways (BA) and Virgin Atlantic. In the 1990s BA engaged in a systematic effort to undermine and discredit Virgin, including stealing Virgin customer data and employing a team of people posing as Virgin employees to call Virgin customers to tell them that their flights had been canceled and offer to switch them to BA. Virgin eventually took BA to court and won the largest libel settlement in U.K. history, which Richard Branson then distributed evenly among all Virgin employees, in what became known as the "BA Christmas bonus" (Elkins, 2017). This is a perfect example of a myth that has become ingrained in Virgin's culture and organizational saga (Clark, 1972) that helps to maintain the relational rivalry with BA.

Figure 1 depicts the theoretical model of the formation of interfirm relational rivalry. Institutionalization is included as a key intermediate step, a critical difference from interindividual relational rivalry. One may argue that institutionalization is part and parcel of interfirm relational rivalry, rather than a mediating mechanism; indeed, it likely operates as both. Further, because it is possible that interfirm relational rivalry could also operate via the psychological processes of key individuals, independently of

[7] Similar arguments are made in the literature on organizational learning, to explain how events can influence organizational action long after their occurrence, even when current organizational members did not experience them (Levitt & March, 1988).

FIGURE 1
The Formation of Interfirm Relational Rivalry



institutionalization, I include direct pathways between the drivers of relational rivalry and its existence between firms.

INTERFIRM RELATIONAL RIVALRY AND COMPETITIVE DYNAMICS

The literature on relational rivalry would seem an ideal candidate for a theory grounded in social psychology and relationships that can be applied to firm-level competitive strategy. Here I integrate the relational rivalry literature with competitive dynamics to leverage the well-developed framework the latter provides. Competitive dynamics researchers examine the exchange of "competitive moves" between pairs of firms as their primary outcome of interest (e.g., Chen, 1996; Chen & Miller, 1994, 2012; Ferrier, 2001; Smith, Ferrier, & Ndofor, 2001). These competitive moves can be classified as "attacks"—such as launching a new product or moving into a new market (things that threaten another firm's market share or anticipated returns)—and "responses"—countermoves that aim to defend a firm's share or profit position (for a full list of possible moves, see Smith et al., 2001). This framework has provided researchers with a more fine-grained set of tools for studying and understanding interfirm competition, and its importance has been demonstrated by numerous studies linking the quantity, type, and timing of competitive moves to firm performance (Chen & Hambrick, 1995; Chen & Miller, 1994, 2012; Ferrier, 2001; Ferrier, Smith, & Grimm, 1999).

Among the primary goals of the competitive dynamics literature is predicting the likelihood, frequency, speed, type, variety, and sequence of competitive moves that firms make. A number of factors have been linked to the quantity and quality of firms' competitive moves, including characteristics of the firm (e.g., size [Chen & Hambrick, 1995], structural complexity [Smith, Grimm, Gannon, & Chen, 1991]), the top management team (e.g., experience [Miller & Chen, 1996], education level [Smith et al., 1991]), the firm dyad (e.g., market overlap [Baum & Korn, 1996]), and the industry (e.g., growth rate [Ferrier, 2000]). Further, characteristics of the moves themselves and how they are communicated have been linked to the likelihood and speed of response from the attacked firms (Chen & Miller, 1994; Nadkarni et al., 2019; Smith et al., 1991).

The most widely used theoretical framework within competitive dynamics is the awareness-motivation-capabilities (AMC) framework (e.g., Chen, 1996; Chen & Miller, 1994, 2012; Chen et al., 1992; Smith et al., 2001). AMC proposes that a focal firm's likelihood of competitive action—and the nature of any competitive action it does take—is driven by (1) how *aware* the focal firm is of the target firm, the competitive threats it imposes, and any attacks it has made; (2) how *motivated* the focal firm is to engage the target firm or respond to its attacks; and (3) how *capable* the focal firm is of undertaking the competitive action in question. As mentioned above, this research, despite using the firm dyad as the unit of analysis, has largely overlooked the influence of relational factors grounded in firms' histories of interaction with one another. Further, despite the inherently psychological nature of two components of the AMC framework—awareness and motivation—these factors are generally talked about in objective terms (e.g., Chen & Miller, 1994; Smith et al., 2001; Yu & Cannella, 2007; although the notion of complacency, which feeds into motivation, has psychological elements to it; e.g., Ferrier, 2001).[8] For example, greater market overlap between firms suggests that they present a greater objective threat to one another, which has been argued to make them more motivated and, thus, more likely to respond to each other's competitive moves (Chen, 1996).

A recent exception to the rational approach to firm motivation in competitive dynamics is a theoretical piece exploring the role of identity—a fundamental construct in social psychology—in competitive dynamics (Livengood & Reger, 2010). The authors put forth a series of propositions based around the core idea that firms will be motivated to protect the central aspects of their organizational identities and may thus compete more vigorously in identity-relevant competitive arenas, even when the potential economic rewards may be relatively smaller than those in other arenas. Here I engage in a similar process in forming propositions related to how relational rivalry between firms will impact their competitive moves vis-à-vis one another. Table 1 summarizes these propositions. I focus on several of the primary outcomes studied by competitive dynamics research, all of which have been linked to firm performance: competitive aggressiveness (including volume of attack, likelihood of response, and speed of response; e.g., Chen, 1996; Ferrier, 2001; Smith et al., 2001), competitive complexity (Ferrier et al., 1999; Miller & Chen, 1996), and competitive inertia (Chen & Miller, 1994).

Two key prerequisites for empirical tests of these propositions are (1) that interfirm relational rivalry exists in the industry of interest and (2) that it can be reliably measured. I describe ways of measuring interfirm relational rivalry in detail in the appendix. Regarding the first point, relational rivalry may be more prevalent in some industries than others. Turbulent industries with high rates of entry and exit will be less likely to contain pairs of relational rivals, because the constant turnover will minimize the extent to which any two firms have been competing in the same market(s) over a significant period of time, which is necessary for relational rivalry to form (via prolonged similarity and repeated competition). Similarly, if firms' standings in the industry were constantly shifting, this would lower the odds of a pair of firms experiencing evenly matched competition over meaningful periods of time, also reducing the prevalence of relational rivalry. In sum, some stability in membership and performance (e.g., market share) among the firms in an industry may be necessary for relational rivalry to develop. Furthermore, relational rivalries may be less likely to form between firms in unconcentrated industries with many, largely undifferentiated competitors. In a competitive environment where no individual competitors stand out, competition from the point of view of a given firm will tend to be against "the market" in aggregate rather than targeted toward specific other firms. Some example industries and areas where relational rivalry may be more prevalent could include the airline industry, automobile industry, banking, defense contracting, corporate law, media, and technology, among others.

Perhaps the clearest implication of the existing research on relational rivalry for competitive dynamics is that relational rival firms will be more prone to engage one another competitively—that is, they will exchange higher volumes of competitive moves with one another. As discussed above, actors are more motivated to outperform their relational rivals as compared to other, nonrival competitors (Kilduff, 2014; Kilduff et al., 2010); thus, as per the AMC framework, firms should be more likely to initiate attacks toward relational rivals than toward other competitors (Chen & Miller, 1994, 2012; Ferrier, 2001), in the attempt to

[8]Even the third element of the AMC framework—capability—is likely a function of managers' *perceptions* of their firms' capability to take strategic actions and, thus, may be also subject to psychological influences.

TABLE 1
Proposed Strategic Outcomes of Interfirm Relational Rivalry

Outcome	Main Effect or Moderation	Level of Analysis and Target	Proposition
Competitive aggressiveness	Positive main effect	Firm dyad; relational rival(s)[a]	1
Competitive aggressiveness	Moderation of the positive effect of capability	Firm dyad; relational rival(s)[a]	2
Attack volume	Moderation of the negative effect of multimarket contact	Firm dyad; relational rival(s)[a]	3
Competitive aggressiveness	Positive main effect	Firm; all firms in the focal firm's markets that are not relational rivals	4
Competitive aggressiveness	Negative main effect	Firm; all firms in the focal firm's markets that are not relational rivals	9
Complexity of competitive repertoire	Positive main effect	Firm; focal firm	5
Competitive inertia	Negative main effect	Firm; focal firm	6
Complexity and inertia	Moderation of the effects of past performance, size, and age	Firm; focal firm	7
Competitive aggressiveness, complexity, and inertia	Moderation of the effects of interfirm relational rivalry by the relational rival's/rivals' performance relative to the focal firm	Firm; all firms in the focal firm's markets	8

[a]As compared to nonrelational rival firms within the same markets.

enhance relative competitive position (Smith et al., 2001). Similarly, when attacked by their relational rivals, firms should be more likely to respond—that is, to take "counteraction . . . to defend or improve . . . position with regard to one or more competitors' initiated actions" (Smith et al., 2001)—and to respond more rapidly (Chen & Hambrick, 1995; Smith, Grimm, Chen, & Gannon, 1989).

Further, specific to the likelihood of response to incoming attacks from relational rivals, firms will tend to be more aware of them and, thus, more likely to respond, compared to attacks from other firms. Relational rivals pay close attention to one another's behavior and performance (Pike et al., 2018) and are highly concerned about their relative status (Kilduff et al., 2016). They should therefore be highly aware of incoming attacks from one another.

Last, recent research has shown that relational rivalry leads decision makers to pursue their goals in a more eager, less deliberative manner (Converse & Reinhard, 2016; To et al., 2018). This provides another mechanism whereby interfirm relational rivalry may increase both the frequency of competitive attack and response and the speed of response.

In sum, greater motivation, awareness, and spontaneous rather than deliberative decision making should cause firms to engage in more competitive action toward relational rivals and to respond more quickly to attacks from relational rivals. The frequency of attack and response and the speed of these actions are sometimes discussed jointly as "intensity of competition" (e.g., Jayachandran et al., 1999) or competitive "aggressiveness" (Ferrier, 2001), so I group these together as a proposition set. Clearly, I am not the first to propose that psychological factors may drive firms' competitive aggressiveness; rather, I am building on the AMC framework in general, and on work linking managers' perceptions of competitive tension (Chen et al., 2007) and identity threat (Livengood & Reger, 2010) to aggressiveness in particular, in proposing a new driver of competitive action grounded in firms' histories with one another. Further, empirical tests of these propositions and the ones that follow should control for indicators of objective competitive threat, such as market overlap (Chen, 1996) and "structural tension" (Chen et al., 2007), as well as other previously established predictors of competitive aggressiveness.

Proposition 1: Firms will (a) initiate a larger number of competitive attacks toward, (b) be more likely to respond to attacks from, and (c) be quicker to *respond to attacks from their relational rivals as compared to other firms within the same industry or strategic group (i.e., nonrelational rivals).*

Beyond just a main effect on competitive aggressiveness, relational rivalry might also moderate a key aspect of the AMC framework. Specifically, capability assessments might become less important for decisions regarding competitive action directed toward relational rivals. Assessments of capability would seem to involve deliberation on the part of firms' decision makers as to whether the firm is able to carry out the action in question to successful completion. However, relational rivalry has been shown to inhibit decision makers' deliberation before taking action (Converse & Reinhard, 2016). Furthermore, the institutionalization of interfirm relational rivalry may involve institutionalization of response to attack from relational rivals—that is, response may be the default, institutionalized behavior, carried out without as much consideration of the specific pros and cons. Thus, I also propose the following moderation proposition.

Proposition 2: The positive effects of firm capability on (a) attack volume, (b) likelihood of response, and (c) speed of response will be weaker for action directed toward relational rivals as compared to nonrelational rivals.

Interfirm relational rivalry could also moderate the negative effect of multimarket contact on the volume of initiated competitive attacks (i.e., mutual forbearance; Baum & Korn, 1996; Jayachandran et al., 1999; note that this does not apply to response likelihood or speed). Indeed, a recent study found that members of rival universities were less likely to cooperate with one another in an ultimatum game scenario, even though cooperation was in the financial interest of both sides (Mills, Tainsky, Green, & Leopkey, 2018), suggesting that relational rivals may be reluctant to engage in the implicit collusion necessary for mutual forbearance. Mutual forbearance between relational rivals may also be limited by relational rivalry's positive effects on promotion focus and eager decision making (Converse & Reinhard, 2016; To et al., 2018). Promotion-focused decision makers focus more on ideals, high aspirations, and the possible gains to be had by acting and less on fears and the possible losses to be incurred (Crowe & Higgins, 1997; Higgins, 1997). Given that mutual forbearance is thought to be driven in large part by fears of cross-market retaliation, the positive effect of relational rivalry on promotion focus suggests that it will reduce this.

Proposition 3: The negative effect of multimarket contact on the volume of firms' attacks toward one another will be weaker between relational rivals as compared to nonrelational rivals.

The above propositions focus on firms' actions toward specific other firms, relational rivals versus nonrelational rivals, and, thus, focus at the firm dyad level. It is also possible that relational rivalry could vary at the firm level such that certain individual firms are engaged in more, or more intense, relational rivalries than other firms. In particular, long-standing industry members will have had an opportunity to build up intense relational rivalries with one or more competitors (assuming relatively stable industry membership), whereas newcomers may not yet have formed any relational rivalries. For example, in the U.S. airline industry, the major carriers American, Delta, and United would seem to display the markings of relational rivalry with one another, built up over many years of evenly matched competition. However, a relative newcomer such as JetBlue may not yet have a strong relational rival. Further, even among long-standing industry members, there may be variation in how much they have experienced the factors that lead to relational rivalry. Southwest Airlines, for example, despite a long tenure in the airline industry, long pursued a different strategy that led to lower levels of similarity and evenly matched competition with other airlines. Similarly, certain U.S. universities are involved in intense relational rivalries (e.g., Michigan/Ohio State, Alabama/Auburn), but others are less so (e.g., Nebraska, Penn State), partly because of shifting conference membership, which has prevented long-running competition against the same opponents, a process that could be thought of as analogous to a firm moving between strategic groups.

In turn, the overall level of relational rivalry that a firm is experiencing could affect its general competitive behavior, beyond just moves that specifically target its relational rivals. Indeed, research on relational rivalry has shown that the experience of competing against a relational rival, and even just *thinking* about a relational rival, can affect subsequent behavior that is not targeted at the rival and may be in entirely different domains. Converse and Reinhard (2016) found that just asking individuals to recall and reflect on a relational rival subsequently made them more likely to choose to begin an unrelated task, rather than engage in a practice run, and to commit more "false positive" errors in a Cognitive Reflection Task, indicating more spontaneous rather than deliberative thinking. Further, Kilduff and Galinsky (2017) found that just reflecting on a relational rival increased people's endorsement of general Machiavellian attitudes and made them more likely to lie to an unrelated third party in a subsequent negotiation. At the organizational level, recent research has shown that sports organizations respond to the success of their relational rivals by performing at a higher level in contests against nonrival third parties (Pike et al., 2018).

Thus, it seems that the experience of relational rivalry can carry over into unrelated situations and interactions, heightening competitiveness and affecting behavior even outside of competition against relational rivals. This leads to the prediction that firms involved in fierce relational rivalries may experience chronically higher levels of competitive motivation as compared to firms involved in fewer or less intense relational rivalries, which should positively affect their competitive aggressiveness in general, even toward nonrelational rivals.

> *Proposition 4: The greater the level of relational rivalry that a firm is involved in, (a) the more likely the firm is to attack, (b) the more likely it is to respond to attack, and (c) the faster it is to respond to attack from competing firms that are not its relational rivals.*

Beyond aggressiveness, there are two additional aspects of the competitive actions taken by firms that could be influenced by the extent to which they have relational rivals: (1) the relative simplicity versus complexity of their competitive repertoires and (2) their competitive inertia. The simplicity versus complexity of a firm's repertoire refers to the extent to which it focuses on just a few types of competitive actions versus many different types of actions (Ferrier et al., 1999; Miller & Chen, 1996). Scholars have argued that greater simplicity in repertoire is the result of greater complacency, owing to greater past performance or reduced industry-level competition (i.e., greater industry growth; Ferrier, 2001; Miller & Chen, 1996). Conversely, greater repertoire complexity is thought to be caused by increased motivation (Connelly, Tihanyi, Ketchen, Carnes, & Ferrier, 2017). Thus, because the presence of relational rivals should increase firms' motivation in general and should reduce complacency, firms with more intense relational rivals are apt to engage in greater complexity of strategic action, independently of the objective level of competition they currently face.

Similarly, scholars have also argued that complacency causes competitive inertia, or reliance on the same competitive strategy over time and failure to make market-oriented changes designed to "attract customers and outmaneuver competitors" (Chen & Miller, 1994: 2). Inertia captures variation (or lack thereof) in competitive strategy and action over time, whereas simplicity versus complexity of repertoire captures the extent to which firms employ a variety of moves at a given point in time. As with repertoire simplicity, I propose that interfirm relational rivalry will serve as an enduring motivational force that reduces complacency, thus reducing inertia. Further, strategic changes are often risky (Chen & Miller, 1994; Hannan & Freeman, 1984), so this proposition is also supported by the positive effect of relational rivalry on risk taking (To et al., 2018). Importantly, these proposed effects will apply to firms' general levels of competitive complexity and inertia, rather than anything specifically directed toward firms' relational rivals; thus, the idea is that the mere presence of a relational rival will keep firms "on their toes."[9]

> *Proposition 5: The greater the level of relational rivalry that a firm is involved in, the greater the complexity of its competitive repertoire.*

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[9]The overall notion that firms involved in relational rivalry will be more aggressive, more proactive, and less complacent also links interfirm relational rivalry to the construct of "entrepreneurial orientation" (Covin & Slevin, 1991; Lumpkin & Dess, 1996). Entrepreneurial orientation is thought to encompass five elements: autonomy, innovativeness, risk taking, proactiveness, and competitive aggressiveness (Lumpkin & Dess, 1996). The empirical evidence on relational rivalry suggests that it would promote at least the final three of these factors; there is less evidence for autonomy and innovativeness.

> *Proposition 6: The greater the level of relational rivalry that a firm is involved in, the lower its competitive inertia.*

Beyond these two main effects, firm-level relational rivalry might also inoculate firms against the specific factors that tend to foster complacency: large size, age, and past high performance (Chen & Miller, 1994; Miller & Chen, 1996). A salient relational rival should serve as an omnipresent galvanizing force for an organization, helping to prevent complacency from setting in even as it grows, ages, and experiences success. Thus, I predict that firm-level relational rivalry will moderate the influence of these factors on competitive simplicity and inertia.

> *Proposition 7: The negative effects of (a) past performance, (b) size, and (c) age on complexity of competitive repertoire and the positive effects of (d) past performance, (e) size, and (f) age on competitive inertia will be weaker for firms involved in higher levels of relational rivalry.*

That said, the extent to which firm-level involvement in relational rivalry drives increased aggressiveness and reduced complacency may depend on the current or recent performance of the relational rival(s). As mentioned, recent research has shown that sports organizations respond to the success of their relational rivals with subsequent increased performance of their own, and this is especially true for exceptional rival performance (Pike et al., 2018). The other side of this, however, is that poor performance by a firm's relational rival may cause it to lower its own expectations or, at least, lack the motivational fuel provided by strong relational rival performance (Pike et al., 2018). Firms that are vastly outperforming their relational rivals might be especially prone to complacency, since one of their primary organizational goals is easily being achieved. In indirect support of this, there is some evidence that the positive effects of relational rivalry on risk taking attenuate when the focal organization is comfortably ahead of the relational rival organization (To et al., 2018). In the language of strategic reference point theory, relational rivals' performance is likely to serve as an important "external reference point" that firms focus on, and the extent to which they are above or below this reference point will help determine the extent to which they behave in an "offensive manner" (Fiegenbaum et al., 1996; also see Greve, 1998). Thus, I put forth the following moderation proposition.

> *Proposition 8: The positive effects of a firm's involvement in relational rivalry on its (a) competitive aggressiveness (volume, likelihood, and speed) and (b) competitive complexity, and the negative effect on its (c) competitive inertia, will be weaker, and possibly even reverse direction, under conditions of low relative performance by the relational rival(s).*

There is one additional possible counterpoint to the notion that firms involved in more intense relational rivalries will be more competitively aggressive in general. It is possible that relational rivalry could lead to a form of competitive myopia (Levinthal & March 1993). That is, firms with intense relational rivals might focus their attention and actions on these particular competitors to such a degree that they lose sight of other competitive threats (for a similar idea that excessive focus on one other competitor may detract from broader firm goals, see Rindova et al., 2004). Indeed, former American Airlines CEO Don Carty said, "I can't imagine two airlines that spend more time preoccupied in competition with each other than American and United . . . We are natural rivals" (Woodyard, 2001).

Although there is no empirical evidence yet showing that relational rivalry fosters such a narrow focus, the heightened psychological importance of relational rivals (Converse & Reinhard, 2016; Kilduff et al., 2010; Kilduff et al., 2016) would certainly suggest this is possible. If we assume that firms' attention is not unlimited (Ocasio, 1997), greater attention paid to certain competitors should lead to reduced attention paid to others, leading to reduced awareness. Indeed, prior work shows that competitive decision makers do have limited attention (Tor & Bazerman, 2003), consistent with a behavioral and cognitive view of the firm (Cyert & March 1963), and research on "environmental scanning" in strategy suggests that organizations narrow their focus and "field of vision" on the arenas where they are most familiar competing in (Hambrick, 1982). Furthermore, firms' ability to undertake competitive action will have an upper limit; thus, actions toward one competitor may preclude actions against another. In sum, involvement in relational rivalry might reduce competitive aggressiveness directed toward nonrelational rivals. The following proposition therefore opposes the predictions in Proposition 4.

> *Proposition 9: The greater the level of relational rivalry that a firm is involved in, (a) the less likely it is to attack, (b) the less likely it is to respond to attack, and (c) the slower it is to respond to attack from competing firms that are not its relational rivals.*

Obviously, whether involvement in relational rivalry increases a firm's competitive aggressiveness toward all of its competitors, or only toward its relational rival(s) to the effect of reducing aggressiveness toward nonrivals, is an empirical question that should be investigated. This will partly depend on the extent to which the firm has the resources to monitor and engage many firms at once—so organizational slack may be an important moderator. The relationship between firm-level involvement in relational rivalry and aggressiveness toward nonrelational rivals might also be curvilinear such that a moderate amount of relational rivalry keeps a firm aggressive in general but an extreme amount leads to a narrow focus. That said, the existing research is clear in suggesting that involvement in strong interfirm relational rivalry with a rival who is performing well will foster generalized motivation that should lead to increased competitive complexity and reduced competitive inertia, since these depend less on firms' ability to pay attention to many competitors at once.

DISCUSSION

In this article I have sought to integrate recent research on rivalry relationships with the competitive dynamics literature, thus extending both areas. This integration involved comparing and contrasting interfirm relational rivalry with existing treatments of interfirm competition and drawing on the existing work on relational rivalry to form a series of novel hypotheses about the determinants of firms' competitive moves. I believe that in doing so this article makes a number of theoretical contributions.

First, although competitive dynamics research has done much to advance our understanding of when and why firms engage one another competitively, scholars have taken a mostly rational and cognitive approach. Managerial perceptions are considered important, but they are generally depicted as diverging from objective indicators of competition only because of cognitive limitations. By applying the relational rivalry framework to competitive dynamics, I hope I have shined more light on the potential roles of social psychological, sociological, and historical relational factors. The focus on pairs of firms' historical experiences with similarity and competitive interaction in particular represents an important theoretical contribution. In addition to leading to a range of novel hypotheses that future research can test empirically, this extends the concept of organizational embeddedness—the idea that firms' market activity and competitive behavior are inherently embedded, influenced, and constrained by their connections with other organizations (Gnyawali & Madhavan, 2001; Granovetter, 1985; Tsai, Su, & Chen, 2011; Uzzi, 1997)—by outlining the ways pairs of firms, over time, develop a special type of competitive relationship that affects their behavior.

Second, this article contributes in important ways to the growing body of research on relational rivalry. The existing research in this space has uncovered a range of consequences for relational rivalry, for individuals and organizations. However, this article is the first to discuss in any depth the potential differences between relational rivalry at the interindividual versus interorganizational levels, to situate relational rivalry within existing conceptualizations and frameworks of interfirm competitive strategy, to explore the potential firm-level strategic consequences of relational rivalry, and to present a broad framework that applies to traditional for-profit firms.

Performance Implications of Interfirm Relational Rivalry

One of the important questions raised in this article is how interfirm relational rivalry affects firm performance. On the one hand, competitive aggressiveness (Chen & Miller, 2012; Ferrier et al., 1999; Smith et al., 2001), complex competitive repertoires (Miller & Chen, 1996), and low competitive inertia (Miller & Chen, 1994) have all been linked to greater firm performance. Thus, although this evidence is largely correlational, to the extent that involvement in relational rivalry keeps firms strategically motivated, aggressive, and active, it may benefit firm performance.

On the other hand, to the extent that relational rivalry causes firms to become preoccupied with outperforming one or two other historic competitors, it might harm firm performance. An excessive focus on competitive goals (e.g., gaining market share from relational rivals) has been linked to reduced profitability (Armstrong & Collopy, 1996) and could detract from more internal goals or "reference points," such as building internal capabilities, which could harm long-term performance (Fiegenbaum et al., 1996). Furthermore, as discussed above, firms' ability to engage competitors is not unlimited; actions directed at one competitor may come at the opportunity cost of being unable to engage a second. Under changing competitive conditions, therefore, relational rivalry might leave firms vulnerable to industry newcomers and other industry changes. An example of this could be when U.S. automakers in the 1970s and 1980s were so focused on one another that they overlooked emerging threats from Japan. Furthermore, although increased competitive aggressiveness seems to be beneficial at the firm level, increased competitive aggressiveness between a pair of firms may lead to costly "competitive wars," including repeated price cuts and excessive advertising spending (Rindova et al., 2004).

Future research should therefore examine empirically the link between relational rivalry and firm-level performance, which may also vary based on various environmental and organizational factors (Lumpkin & Dess, 1996). Of course, there may also be firm-level effects that accrue from the individual-level effects of relational rivalry on employees—greater motivation (Kilduff, 2014) and organizational identification (Berendt & Uhrich, 2016; Kilduff & Pettit, 2014) on the positive side and greater unethicality on the negative side (Kilduff et al., 2016)—making the overall relationship a complex one, but certainly worth investigating.

Future Directions

The most obvious future directions to follow from this article would be empirical tests of the propositions and examination of the performance implications of interfirm relational rivalry. Beyond this, there are a wide range of other avenues for research related to interfirm relational rivalry. First, one direction would be to dig further into its institutionalization. Measuring institutionalization of interfirm relational rivalry directly, while making sure one is not also tapping into other things, such as managers' current competitive perceptions (e.g., Chen et al., 2007), may be difficult. However, one starting point for investigation could be to explore changes in firm leadership as a possible moderator of the factors thought to contribute to interfirm relational rivalry, as well as its proposed effects. If interfirm relational rivalry really is institutionalized at the organizational level, integrated into organizations' cultures, memories, and sagas, we would expect it to be relatively unaffected by changes in leadership; incoming leaders should be socialized into their new firms' relational rivalries. However, if it is based at least in part in the psychology and experiences of specific decision makers, and if current leadership did not experience the similarity, repeated competition, and evenly matched contests that contributed to a relational rivalry, they should be less influenced by it. In this case, changes in leadership might diminish firms' relational rivalries, especially when firms bring in outsiders as top managers. Indeed, it is possible that incoming executives might actually bring along the relational rivalries they were involved with at their prior firms. Future empirical study could explore this question by testing whether the relationships between firms' past experiences (with similarity and repeated and evenly matched competition) and subsequent competitive moves are moderated by leadership change. Researchers might also examine the relative influence of firms' historical experiences versus their current leaders' experiences with those factors.

One direct and measurable consequence of institutionalization that future work could examine is "entitativity," or the extent to which organizational members share the same attitudes or feelings (Crawford, Sherman, & Hamilton, 2002)—in this case, the perception that a target firm is a relational rival. Entitativity is thought to be an important determinant of the extent to which individual-level processes aggregate up to the group and organizational levels (Hamilton & Sherman, 1996; Klein, Dansereau, & Hall, 1994). Prior work suggests that relational rivalry between sports organizations is characterized by very high entitativity, with coaches and players in agreement as to who their relational rivals are

(Kilduff et al., 2010). This may vary across organizations and industries, however, and could be used as one indicator of the degree to which interfirm relational rivalry is institutionalized. Importantly, it could also be examined as a potential moderator of the propositions contained here: interfirm relational rivalry may need to be institutionalized and spread throughout an organization for it to have maximal effects.

Institutionalization of interfirm relational rivalry should protect it against changes in both organizational membership and industry conditions (e.g., reducing levels of resource similarity and market overlap). However, there are still apt to be cases in which large enough changes occur so as to diminish existing interfirm relational rivalry, which is a second interesting avenue for future research. Perhaps after many years of reduced similarity and market competition, or lopsided competition, relational rivalry begins to subside, despite the reinforcing effects of institutionalization. Or perhaps the emergence of a new relational rival can serve to replace an existing one, if firms can only have one or a few relational rivals at a time. A related question would be to examine what happens when a firm's relational rival(s) exits the market (e.g., goes bankrupt). It is possible that firms could, ironically, suffer from the absence of their relational rivals, since they may struggle to summon the motivation needed to maintain competitive aggressiveness and avoid competitive simplicity and inertia.

A third avenue for future research would be to examine the potential for interfirm relational rivalry to form from factor-market competition (Markman, Gianiodis, & Buchholtz, 2009). This article focuses primarily on competitive moves within product markets, following in the tradition of competitive dynamics (e.g., Chen, 1996); however, it is certainly possible that interfirm relational rivalry could also be driven by and affect factor-market competition, which takes place further up the value chain, usually over resource positions. For example, if a home appliances firm and a portable electronics firm repeatedly competed, over time, to buy computer chips from suppliers, they might develop a relational rivalry, even if they do not compete in the same product markets. If at some point the two then encountered one another in a product market, they might engage competitively to a much greater extent than would otherwise have been expected, even if their factor-market competition had more recently subsided.

Fourth, future research could explore if there may be conditions where relational rival firms actually cooperate with one another, to a greater degree than nonrelational rivals. Unpublished research shows that individual relational rivals may actually come to form a bond with another, in the form of shared identity, because of their shared memorable experiences, as well as cocategorization from observers (Thomas, 2016). As a result, in situations where relational rival firms are not directly competing against one another, they might actually seek to cooperate or help one another—for example, if one of the firms is entering a new market that the other does not operate in. This might also occur if relational rivals face a common threat, such as the emergence of a new industry that threatens them both. The institutionalization of competition between relational rival firms, however, could lead to a scenario that resembles "intractable conflict" (e.g., Coleman, 2000), whereby they are locked into a pattern of competing with each other even when deescalation or cooperation may be more beneficial to both. Existing research in strategy has examined the possibility of "coopetition," or the simultaneous existence of competition and cooperation between firms (Brandenburger & Nalebuff, 1996), and it would be interesting to examine the extent to which relational rivalry between firms facilitates or impedes this and other types of interaction beyond competitive moves.

Fifth, future research could examine the existence and consequences of more asymmetric relational rivalries, where one firm sees the other as an intense relational rival but this is not reciprocated. Relational rivalry has been conceptualized to allow for such asymmetries (Kilduff et al., 2010), but no one has examined the consequences of symmetric versus asymmetric relational rivalry. Although relational rivalry was found to be fairly highly symmetrical among university sports teams (Kilduff et al., 2010), this may be less true in other industries.

Sixth, it could be valuable to connect relational rivalry with the literature on firms' aspiration levels, which dates back to the behavioral theory of the firm and argues that firms set their performance aspirations by their past goals and performance, as well as the performance of other "comparable" firms (Cyert & March 1963). Research shows that whether a firm meets versus fails to meet these aspiration levels has significant implications for its decisions to change (e.g., Audia & Brion, 2007; Audia & Greve, 2006; Fiegenbaum & Thomas, 1988; Greve, 1998, 2008; Kuusela et al., 2017; for a review see Shinkle, 2012).

Social aspirations are often assessed by the average performance level of other firms within the industry (e.g., Audia & Greve, 2006; Baum, Rowley, Shipilov, & Chuang, 2005; Greve, 1998), which overlooks the possibility that some firms may be more important than others. This has been amended in certain more recent studies (Greve, 2008; Kuusela et al., 2017); however, these refined calculations are still based on objective measures of the current competitive environment, whereas aspirations are inherently a subjective construct that can be affected by social psychological forces (Labianca, Fairbank, Andrevski, & Parzen, 2009). Interfirm relational rivalry would suggest that firms, in forming social aspirations, may focus heavily on just one or two firms with whom they have a long-standing history of competition, independent of current market conditions. In turn, this could help better predict the range of important organizational outcomes that have been linked to meeting or failing to meet aspirations (Shinkle, 2012).

Seventh, relational rivalry may affect firms' willingness to pay premiums for acquisitions. Acquisitions generally have a neutral to negative effect on the shareholder wealth of acquiring firms, since firms typically overpay for them (for a brief review see Hayward & Hambrick, 1997). One reason for this may be CEO hubris or overconfidence fueled by media praise, recent success, and high relative compensation (Hayward & Hambrick, 1997). Relational rivalry could be a second reason. Microlevel research has linked relational rivalry to overbidding in auctions (Ku et al., 2005; Malhotra, 2010); thus, we might predict that firms engaged in acquisition bidding wars with their relational rivals will be likely to pay higher premiums. An example of this may have been when Boston Scientific vastly overpaid, by all accounts, for its acquisition of Guidant when bidding against longstanding rival Johnson & Johnson (Malhotra, Ku, & Murnighan, 2008; Tully, 2006).

Eighth, it would be interesting to examine the potential link between interfirm relational rivalry and innovation. Relational rivalry leads to greater risk taking and pursuit of ideals (To et al., 2018); thus, it might be expected to promote greater exploration of new potential products and markets. Further, innovativeness is thought to be one of the five pillars of firm-level entrepreneurial orientation, along with factors already linked to relational rivalry—that is, risk taking, proactiveness, and competitive aggressiveness (Lumpkin & Dess, 1996). So to the extent that these aspects of entrepreneurial orientation go together or reinforce each other, this would suggest that relational rivalry promotes innovativeness. Finally, it might be fruitful to integrate interfirm relational rivalry with social networks research. Gnyawali and Madhavan (2001) explored the implications of objective competition and cooperation networks for competitive dynamics; firms' positions in relational rivalry networks might also serve as important determinants of their behavior and outcomes. For example, what are the implications of a firm's high centrality in a relational rivalry network such that multiple competing firms consider it a relational rival? It would also be interesting to examine whether relational rivalry ties operate in ways consistent with key networking principles such as transitivity and balance theory (Heider, 1958). A focal firm might direct greater competitive action toward the allies of its relational rival(s) and/or toward the relational rival(s) of its allies (see Sgourev & Operti, in press, who examine such rivalry transitivity effects for career mobility).

Conclusion

The initial seeds of rivalry are sown via competition over objective resources. Yet it can become a relationship that is much more than that—one that lives on even after objective competition may have diminished. By applying theory on relational rivalry to firm-level strategic and competitive behavior, I am hopeful that this article will help to advance research in competitive dynamics and other areas of strategy and will encourage strategy researchers to continue to consider the roles of social psychological, relational, and historical factors.

APPENDIX: MEASURING INTERFIRM RELATIONAL RIVALRY

There are a number of ways interfirm relational rivalry could be measured. First, perhaps the most obvious way would be to ask firm members. This could be done via survey, where they would be asked to list the one or a few competing firms they feel the highest level of rivalry toward, or by providing them a list of the competing firms within their industry or strategic group and asking them to rate how strongly they feel rivalry toward each. Similar methodology has been used to assess the firms that managers consider to be their primary competitors (e.g., Chen et al., 2007; Porac & Thomas, 1994; Porac et al., 1995; Tsai et al., 2011). Surveys could also be used to assess the extent to which relational rivalries are shared throughout organizations. If the rivalry ratings of frontline employees match those of senior executives, this would provide evidence of entitativity (Crawford et al., 2002) and would suggest that the relational rivalry is institutionalized. Obviously, it can be challenging to obtain the participation of senior executives, but various researchers have succeeded in doing so in the past (e.g., Reger & Palmer, 1996), and the evidence suggests that it is not necessary to obtain CEOs' participation; senior executives at the vice-president level are sufficiently "expert" (Chen, Fahr, & MacMillan, 1993; Hambrick, 1981).

A second option would be to consult with industry experts or "informants" (Chen et al., 1993; Chen et al., 2007). The use of such informants is common within strategy research and can include security analysts, consultants, and industry stakeholders, as well as academics (for more detail see Chen et al., 1993). Indeed, the evidence suggests that the expertise of these informants is quite high (Chen et al., 1993). As an example, Kilduff et al. (2010) assessed relational rivalries between university basketball programs by surveying sportswriters at the universities' newspapers and found a very high degree of agreement among these experts, as well as between their ratings of relational rivalry and ratings made by actual players and coaches. Outside informants can provide the added benefit of being able to assess the entire rivalry network within an industry or strategic group, rather than just providing one firm's view of its relational rivals (Chen et al., 1993).

Of course, a concern with collecting surveys to assess relational rivalry, especially from firm members, is that this might conflate relational rivalry with current levels of competition. There is likely to be some degree of overlap between a firm's most intense current competitors and its relational rivals, especially within more stable industries. Furthermore, although I have articulated here how current competition and relational rivalry are conceptually distinct, it is quite likely that managers' perceptions of their firms' primary competitors will be influenced by interfirm interaction histories and relationships and, thus, will tend to reflect relational rivalry as well as objective current competition. Indeed, it seems plausible, if not likely, that prior studies where managers were asked to report their perceptions of their firms' primary competitors were at least partly assessing relational rivalry.[10]

To help address the potential confound between current competition and relational rivalry in respondents' minds, it might be helpful to include survey questions that explicitly reference history and relationships, such as "We have a history with this firm that makes competitions between us more significant than competitions against other firms" (adapted from Kilduff, 2014), as well as questions that specifically reference current levels of competition, such as "Which other firms do you currently face the greatest competitive threat from, independent of what has happened in the past?" Of course, the extent to which managers are able to distinguish between these and not have their perceptions of current competitive threat influenced by the past is questionable. Outside informants might be able to take a more objective view, although their responses can be highly correlated with insiders (e.g., Chen et al., 2007). That said, if perceptions of relational rivalry and current competitive threat did diverge sufficiently, the relative influence of each on firm outcomes could be assessed.

As an alternative, researchers could turn to more objective, albeit indirect, markers of relational rivalry, based on its antecedents (see Figure 1). Specifically, one could measure past similarity, repeated competition, and evenly matched competition to infer relational rivalry.

Similarity along key characteristics such as size (Baum & Mezias, 1992) and resource profile (Baum & Korn, 1996; Chen et al., 2007) can be measured fairly easily. Market commonality

[10]Such existing datasets (e.g., Chen et al., 2007) could potentially be analyzed to test whether these perceptions are, in fact, driven in part by the proposed antecedents of interfirm relational rivalry (based in the distant past), controlling for other factors that have been shown to predict managers' competitive perceptions (e.g., Chen et al., 2007; Porac & Thomas, 1994). Relational rivalry might help to explain why managers' competitive perceptions have been found to diverge from objective indicators of competition (Porac & Thomas, 1994; Porac et al., 1989; Reger & Palmer, 1996).

(Chen, 1996) could also be seen as falling under the general category of similarity, as could comembership in the same strategic group, although these are perhaps more directly indicative of competitive intensity. Similarity in more socially constructed attributes of firms, such as status and reputation, could also be assessed (e.g., Benjamin & Podolny, 1999). Again, importantly, for all of these factors, one would need to measure *past* similarity and control for current similarity.

Past repeated competition between firms could be measured in various ways. One could measure the historic volume of attacks exchanged between firms (e.g., Chen, 1996; Chen & Miller, 1994; Chen et al., 2007; Yu & Cannella, 2007). One could also measure the length of time that pairs of firms have been in competition with one another—as the number of years in which there was at least one competitive move exchanged between the firms, the number of years in which the firms were members of the same industry or strategic group, or the number of years in which one firm mentioned the other as a competitor in its earnings reports.

Past evenly matched performance could be assessed by measures of how closely matched pairs of firms were, in the past, along measures of profitability and performance. The specific measures used might depend on the industry being examined—for example, a key measure of airline performance is "passenger load factor" (or revenue seat-miles divided by available seat-miles; Chen & Miller, 1994)—but standard measures would include things such as market share (e.g., Greve, 1998), return on assets (e.g., Kuusela et al., 2017), and return on sales (e.g., Audia et al., 2000).

This approach of measuring relational rivalry indirectly, via its antecedents, has been successfully implemented at the individual level. Relational rivalry between pairs of long-distance runners was assessed via empirical analysis of several years of race data (Kilduff, 2014). Similarity was assessed via demographic similarity (age, gender), repeated competition by number of races run together, and evenly matched performance by margins in finish time in runners' head-to-head races. Runners' relational rivals were identified as those opponents with the highest aggregate score across these measures, and the performance effects of relational rivalry were then assessed via analysis of a subsequent multiyear period of race results.

Analogously, strategy researchers could measure past similarity, repeated competition, and evenly matched competition between firms and use these measures to predict subsequent firm-level strategic behavior, controlling for current levels of these factors. This approach would mirror the approach long used in the literature on top management teams, in which demographic attributes of top managers are measured as indirect indicators of intervening psychological processes that are difficult to measure and then associated with firm-level outcomes (Hambrick & Mason, 1984).

A final way of assessing interfirm relational rivalry could be text analysis of media publications. Business rivalries attract a great deal of press. Various online databases of media publications allow for keyword search terms, and researchers could search for articles that contain firm names as well as any of the words "rival," "rivals," and "rivalry." Then counts of articles meeting this search criteria could be used as a continuous measure of the relational rivalry between each pair of firms in a given industry or strategic group. This type of searching could even be done via the World Wide Web and popular search engines such as Google, using counts of pages returned as a measure of the extent to which the online world sees a pair of companies as rivals. Indeed, this was one of the techniques recently used to assess rivalry between sports franchises (To et al., 2018). Of course, it is possible that some publications and online sources might use "rivals" and "rivalry" simply as synonyms for current competitors and competition, as some academics do, but, anecdotally, the media seem to have a sense of the difference between competition and rivalry; see for example, *Fortune*'s (2013) "The 50 Greatest Business Rivalries of All Time," *Fast Company*'s "Top 10 Business Rivalries in History" (Harris, 2015), or *Bloomberg Markets'* "Rivalry Issue" from July/August 2015, all of which focus on the historical and relational aspects of rivalry. This online search technique could also be adapted to measure trash-talking between firms, which recent research suggests might also be a factor that contributes to the intensity of relational rivalry (Yip et al., 2018).

REFERENCES

Armstrong, J. S., & Collopy, F. 1996. Competitor orientation: Effects of objectives and information on managerial decisions and profitability. ***Journal of Marketing Research,*** 33: 188–199.

Ashforth, B. K., & Saks, A. M. 1996. Socialization tactics: Longitudinal effects on newcomer adjustment. ***Academy of Management Journal,*** 39: 149–178.

Audia, P. G., & Brion, S. 2007. Reluctant to change: Self-enhancing responses to diverging performance measures. ***Organizational Behavior and Human Decision Processes,*** 102: 255–269.

Audia, P. G., & Greve, H. R. 2006. Less likely to fail: Low performance, firm size, and factory expansion in the shipbuilding industry. ***Management Science,*** 52: 83–94.

Audia, P. G., Locke, E. A., & Smith, K. G. 2000. The paradox of success: An archival and a laboratory study of strategic persistence following radical environmental change. ***Academy of Management Journal,*** 43: 837–853.

Barnett, W. P., & Pontikes, E. G. 2005. The Red Queen: History-dependent competition among organizations. ***Research in Organizational Behavior,*** 26: 351–371.

Baron, J. N., Hannan, M. T., & Burton, M. D. 1999. Building the iron cage: Determinants of managerial intensity in the early years of organizations. ***American Sociological Review,*** 64: 527–547.

Bartel, C. A., & Garud, R. 2009. The role of narratives in sustaining organizational innovation. ***Organization Science,*** 20: 107–117.

Baum, J. A. C., & Korn, H. J. 1996. Competitive dynamics of interfirm rivalry. ***Academy of Management Journal,*** 39: 255–291.

Baum, J. A. C., & Mezias, S. J. 1992. Localized competition and organizational failure in the Manhattan hotel industry, 1898–1990. ***Administrative Science Quarterly,*** 37: 580–604.

Baum, J. A. C., Rowley, T. J., Shipilov, A. V., & Chuang, Y. T. 2005. Dancing with strangers: Aspiration performance and the search for underwriting syndicate partners. ***Administrative Science Quarterly,*** 50: 536–575.

Benjamin, B. A., & Podolny, J. M. 1999. Status, quality, and social order in the California wine industry. ***Administrative Science Quarterly,*** 44: 563–589.

Berendt, J., & Uhrich, S. 2016. Enemies with benefits: The dual role of rivalry in shaping sports fans' identity. ***European Sport Management Quarterly,*** 16: 613–634.

Bothner, M. S., Kang, J. H., & Stuart, T. E. 2007. Competitive crowding and risk taking in a tournament: Evidence from NASCAR racing. ***Administrative Science Quarterly,*** 52: 208–247.

Brandenburger, A. M., & Nalebuff, B. J. 1996. ***Co-opetition: A revolutionary mindset that combines competition and cooperation in the marketplace: The game theory strategy that's changing the game of business.*** New York: Currency Doubleday.

Brickman, P., Redfield, J., Harrison, A. A., & Crandall, R. 1972. Drive and predisposition as factors in the attitudinal effects of mere exposure. ***Journal of Experimental Social Psychology,*** 8: 31–44.

Cabral, 2018. We're number 1: Price wars for market share leadership. ***Management Science,*** 64: 2013-2030.

Chatterjee, A., & Hambrick, D. C. 2007. It's all about me: Narcissistic chief executive officers and their effects on company strategy and performance. ***Administrative Science Quarterly,*** 52: 351–386.

Chen, M.-J. 1996. Competitor analysis and interfirm rivalry: Toward a theoretical integration. ***Academy of Management Review,*** 21: 100–134.

Chen, M.-J., Fahr, J.-L., & MacMillan, I. 1993. An exploration of the expertness of outside informants. ***Academy of Management Journal,*** 36: 1614–1632.

Chen, M.-J., & Hambrick, D. C. 1995. Speed, stealth, and selective attack: How small firms differ from large firms in competitive behavior. ***Academy of Management Journal,*** 38: 453–482.

Chen, M.-J., & Miller, D. 1994. Competitive attack, retaliation and performance: An expectancy-valence framework. ***Strategic Management Journal,*** 15: 85–102.

Chen, M.-J., & Miller, D. 2012. Competitive dynamics; Themes, trends, and a prospective research platform. ***Academy of Management Journal,*** 6: 135–210.

Chen, M.-J., & Miller, D. 2015. Reconceptualizing competitive dynamics: A multidimensional framework. ***Strategic Management Journal,*** 36: 758–775.

Chen, M.-J., Smith, K. G., & Grimm, C. M. 1992. Action characteristics as predictors of competitive responses. ***Management Science,*** 38: 439–455.

Chen, M.-J., Su, K. H., & Tsai, W. 2007. Competitive tension: The awareness-motivation-capability perspective. ***Academy of Management Journal,*** 50: 101–118.

Clark, B. R. 1972. The organizational saga in higher education. ***Administrative Science Quarterly,*** 17: 178–184.

Coleman, P. T. 2000. Intractable conflict. In M. Deutsch & P. T. Coleman (Eds.), ***The handbook of conflict resolution: Theory and practice:*** 428–450. Francisco: Jossey-Bass.

Connelly, B. L., Tihanyi, L., Ketchen, D. J., Carnes, C., & Ferrier, W. 2017. Competitive repertoire complexity: Governance antecedents and performance outcomes. ***Strategic Management Journal,*** 38: 1151–1173.

Converse, B. A., & Reinhard, D. A. 2016. On rivalry and goal pursuit: Shared competitive history, legacy concerns, and strategy selection. ***Journal of Personality and Social Psychology,*** 110: 191–213.

Cool, K., & Dierickx, I. 1993. Rivalry, strategic groups and firm profitability. ***Strategic Management Journal,*** 14: 47–59.

Covin, J. G., & Slevin, D. P. 1991. A conceptual model of entrepreneurship as firm behavior. ***Entrepreneurship Theory and Practice,*** 16: 7–26.

Crawford, M. T., Sherman, S. J., & Hamilton, D. L. 2002. Perceived entitativity, stereotype formation, and the interchangeability of group members. ***Journal of Personality and Social Psychology,*** 83: 1076–1094.

Crossland, C., & Hambrick, D. C. 2007. How national systems differ in their constraints on corporate executives: A study of CEO effects in three countries. ***Strategic Management Journal,*** 28: 767–789.

Crowe, E., & Higgins, E. T. 1997. Regulatory focus and strategic inclinations: Promotion and prevention in decision-making. ***Organizational Behavior and Human Decision Processes,*** 69: 117–132.

Cyert, R. M., & March, J. G. 1963. ***A behavioral theory of the firm.*** Englewood Cliffs, NJ: Prentice-Hall.

Delgado-Garcia, J. B., & de la Fuente-Sabate, J. M. 2010. How do CEO emotions matter? Impact of CEO affective traits on strategic and performance conformity in the Spanish banking industry. ***Strategic Management Journal,*** 31: 562–574.

Deutsch, M. 1949. A theory of cooperation and competition. ***Human Relations,*** 2: 129–152.

Elkins, K. 2017. When Richard Branson's airline won $945,000 from a lawsuit, he gave it all to his employees. ***CNBC,*** August 4: https://www.cnbc.com/2017/08/03/richard-bransons-airline-won-945000-and-it-all-went-to-employees.html.

Ferrier, W. 2000. Playing to win: The role of competitive disruption and aggressiveness. In R. Bresser, M. Hitt, D. Heuskel, & R. Nixon (Eds.), ***Winning strategies in a deconstructing world:*** 163–189. New York: Wiley.

Ferrier, W. J. 2001. Navigating the competitive landscape: The drivers and consequences of competitive aggressiveness. ***Academy of Management Journal,*** 44: 858–877.

Ferrier, W. J., Smith, K. G., & Grimm, C. M. 1999. The role of competitive action in market share erosion and industry dethronement: A study of industry leaders and challengers. ***Academy of Management Journal,*** 42: 372–388.

Festinger, L. 1954. A theory of social comparison processes. ***Human Relations,*** 7: 117–140.

Fiegenbaum, A., Hart, S., & Schendel, D. 1996. Strategic reference point theory. ***Strategic Management Journal,*** 17: 219–235.

Fiegenbaum, A., & Thomas, H. 1988. Attitudes toward risk and the risk-return paradox: Prospect theory explanations. ***Academy of Management Journal,*** 31: 85–106.

Finkelstein, S., & Hambrick, D. C. 1990. Top-management-team tenure and organizational outcomes: The moderating role of managerial discretion. ***Administrative Science Quarterly,*** 35: 484–503.

Fiol, C. M., & Lyles, M. A. 1985. Organizational learning. ***Academy of Management Review,*** 10: 803–813.

Fortune. 2013. The 50 greatest business rivalries of all time. March 21: http://fortune.com/2013/03/21/the-50-greatestbusiness-rivalries-of-all-time/.

Fuentelsaz, L., & Gómez, J. 2006. Multipoint competition, strategic similarity and entry into geographic markets. ***Strategic Management Journal,*** 27: 477–499.

Garcia, S. M., Tor, A., & Gonzalez, R. 2006. Ranks and rivals: A theory of competition. ***Personality and Social Psychology Bulletin,*** 32: 970–982.

Garcia, S. M., Tor, A., & Schiff, T. M. 2013. The psychology of competition: A social comparison perspective. ***Perspectives on Psychological Science,*** 8: 634–650.

Gibson, L. 2017. Ninety-seven percent of students vote in support A&M rivalry game. ***Daily Texan,*** September 2: https://www.dailytexanonline.com/2017/09/29/ninety-seven-percent-of-students-vote-in-support-am-rivalry-game.

Gilbert, A. 2003. Siebel, rivals trade potshots over UpShot. ***CNET News,*** October 20: https://www.cnet.com/news/siebel-rivals-trade-potshots-over-upshot/.

Gimeno, J., & Woo, C. Y. 1996. Hypercompetition in a multimarket environment: The role of strategic similarity and multimarket contact in competitive de-escalation. ***Organization Science,*** 7: 322–341.

Gnyawali, D. R., & Madhavan, R. 2001. Cooperative networks and competitive dynamics: A structural embeddedness perspective. ***Academy of Management Review,*** 26: 431–445.

Granovetter, M. 1985. Economic action and social structure: The problem of embeddedness. ***American Journal of Sociology,*** 91: 481–510.

Greve, H. R. 1998. Managerial cognition and the mimetic adoption of market positions: What you see is what you do. ***Strategic Management Journal,*** 19: 967–988.

Greve, H. R. 2008. A behavioral theory of firm growth: Sequential attention to size and performance goals. ***Academy of Management Journal,*** 51: 476–494.

Hambrick, D. C. 1981. Environment, strategy, and power within top management teams. ***Administrative Science Quarterly,*** 26: 253–275.

Hambrick, D. C. 1982. Environmental scanning and organizational strategy. ***Strategic Management Journal,*** 3: 159–174.

Hambrick, D. C., & Mason, P. A. 1984. Upper echelons: The organization as a reflection of its top managers. ***Academy of Management Review,*** 9: 193–206.

Hamilton, D. L., & Sherman, S. J. 1996. Perceiving persons and groups. ***Psychological Review,*** 103: 336–355.

Hannan, M. T., & Freeman, J. 1984. Structural inertia and organizational change. ***American Sociological Review,*** 49: 149–164.

Harris, A. 2015. The top 10 business rivalries in history. ***Fast Company,*** August 17: https://www.fastcompany.com/3048493/the-top-10-business-rivalries-in-history.

Hayward, M. L. A., & Hambrick, D. C. 1997. Explaining the premiums paid for large acquisitions: Evidence of CEO hubris. ***Administrative Science Quarterly,*** 42: 103–127.

Hayward, M. L. A., Rindova, V. P., & Pollock, T. G. 2004. Believing one's own press: The causes and consequences of CEO celebrity. ***Strategic Management Journal,*** 25: 637–653.

Heider, F. 1958. ***The psychology of interpersonal relations.*** New York: Wiley.

Higgins, E. T. 1997. Beyond pleasure and pain. ***American Psychologist,*** 52: 1280–1300.

Hiller, N. J., & Hambrick, D. C. 2005. Conceptualizing executive hubris: The role of (hyper-) core self-evaluations in strategic decision-making. ***Strategic Management Journal,*** 26: 297–319.

Huy, Q. N. 2012. Emotions in strategic organization: Opportunities for impactful research. ***Strategic Organization,*** 10: 240–247.

Jayachandran, S., Gimeno, J., & Varadarajan, P. R. 1999. The theory of multimarket competition: A synthesis and implications for marketing strategy. ***Journal of Marketing,*** 63: 49–66.

Kahneman, D., & Miller, D. T. 1986. Norm theory: Comparing reality to its alternatives. ***Psychological Review,*** 93: 136–153.

Kaplan, S. 2011. Research in cognition and strategy: Reflections on two decades of progress and a look to the future. ***Journal of Management Studies,*** 48: 665–695.

Katila, R., & Chen, E. L. 2008. Effects of search timing on innovation: The value of not being in sync with rivals. ***Administrative Science Quarterly,*** 53: 593–625.

Kilduff, G. J. 2014. Driven to win: Rivalry, motivation, and performance. ***Social Psychological and Personality Science,*** 5: 944–952.

Kilduff, G. J., Elfenbein, H. A., & Staw, B. M. 2010. The psychology of rivalry: A relationally dependent analysis of competition. ***Academy of Management Journal,*** 53: 943–969.

Kilduff, G. J., & Galinsky, A. D. 2017. The spark that ignites: Mere exposure to rivals increases Machiavellianism and unethical behavior. ***Journal of Experimental Social Psychology,*** 69: 156–162.

Kilduff, G. J., Galinsky, A. D., Gallo, E., & Reade, J. J. 2016. Whatever it takes to win: Rivalry increases unethical behavior. ***Academy of Management Journal,*** 59: 1508–1534.

Kilduff, G. J., & Pettit, N. C. 2014. ***Rally around the rival: Organizational rivalry promotes identification, commitment, and citizenship.*** Paper presented at the annual meeting of the Academy of Management, Philadelphia.

Klein, K. J., Dansereau, F., & Hall, R. J. 1994. Levels issues in theory development, data collection, and analysis. ***Academy of Management Review,*** 19: 195–229.

Ku, G., Malhotra, D., & Murnighan, J. K. 2005. Towards a competitive arousal model of decision-making: A study of auction fever in live and Internet auctions. ***Organizational Behavior and Human Decision Processes,*** 96: 89–103.

Kuusela, P., Keil, T., & Maula, M. V. J. 2017. Driven by aspirations, but in what direction? Performance shortfalls, slack resources and resource-consuming vs. resource-freeing organizational change. ***Strategic Management Journal,*** 38: 1101–1120.

Labianca, G., Fairbank, J. F., Andrevski, G., & Parzen, M. 2009. Striving toward the future: Aspiration-performance discrepancies and planned organizational change. ***Strategic Organization,*** 7: 433–466.

Lamberg, J. A., Tikkanen, H., Nokelainen, T., & Suur-Inkeroinen, H. 2009. Competitive dynamics, strategic consistency, and organizational survival. ***Strategic Management Journal,*** 30: 45–60.

Levinthal, D. A., & March, J. G. 1993. The myopia of learning. ***Strategic Management Journal,*** 14: 95–112.

Levitt, B., & March, J. G. 1988. Organizational learning. ***Annual Review of Sociology,*** 14: 319–338.

Livengood, R. S., & Reger, R. K. 2010. That's our turf! Identity domains and competitive dynamics. ***Academy of Management Review,*** 35: 48–66.

Lumpkin, G. T., & Dess, G. G. 1996. Clarifying the entrepreneurial orientation construct and linking it to performance. ***Academy of Management Review,*** 21: 135–172.

Malhotra, D. 2010. The desire to win: The effects of competitive arousal on motivation and behavior. ***Organizational Behavior and Human Decision Processes,*** 111: 139–146.

Malhotra, D., Ku, G., & Murnighan, J. K. 2008. When winning is everything. ***Harvard Business Review***, 86(5): 78–86.

Markman, G. D., Gianiodis, P. T., & Buchholtz, A. K. 2009. Factor-market rivalry. ***Academy of Management Review,*** 34: 423–441.

Martin, J., Feldman, M. S., Hatch, M. J., & Sitkin, S. B. 1983. The uniqueness paradox in organizational stories. ***Administrative Science Quarterly,*** 28: 438–453.

Mas-Ruiz, F. J., Ruiz-Moreno, F., & Ladrón de Guevara Martínez, A. 2014. Asymmetric rivalry within and between strategic groups. ***Strategic Management Journal,*** 35: 419–439.

McGee, J., & Thomas, H. 1986. Strategic groups: Theory, research and taxonomy. ***Strategic Management Journal,*** 7: 141–160.

Medvec, V. H., Madey, S., & Gilovich, T. 1995. When less is more: Counterfactual thinking and satisfaction among Olympic medal winners. ***Journal of Personality and Social Psychology,*** 69: 603–610.

Medvec, V. H., & Savitsky, K. 1997. When doing better means feeling worse: The effects of categorical cutoff points on counterfactual thinking and satisfaction. ***Journal of Personality and Social Psychology,*** 72: 1284–1296.

Miller, D., & Chen, M.-J. 1994. Sources and consequences of competitive inertia: A study of the US airline industry. ***Administrative Science Quarterly,*** 39: 1–23.

Miller, D., & Chen, M.-J. 1996. The simplicity of competitive repertoires: An empirical analysis. ***Strategic Management Journal,*** 17: 419–439.

Miller, D., & Dröge, C. 1986. Psychological and traditional determinants of structure. ***Administrative Science Quarterly,*** 31: 539–560.

Mills, B. M., Tainsky, S., Green, B. C., & Leopkey, B. 2018. The ultimatum game in the college football rivalry context. ***Journal of Sport Management,*** 32: 11–23.

Mussweiler, T., & Rüter, K. 2003. What friends are for! The use of routine standards in social comparison. ***Journal of Personality and Social Psychology,*** 85: 467–481.

Nadkarni, S., & Barr, P. S. 2008. Environmental context, managerial cognition, and strategic action: An integrated view. ***Strategic Management Journal,*** 29: 1395–1427.

Nadkarni, S., Pan, L., & Chen, T. 2019. Only timeline will tell: Temporal framing of competitive announcements and rivals' responses. ***Academy of Management Journal,*** 62: 117–143.

Ocasio, W. 1997. Towards an attention-based view of the firm. ***Strategic Management Journal,*** 18: 187–206.

Pike, B., Kilduff, G. J., & Galinsky, A. D. 2018. The long shadow of rivalry: Rivalry motivates performance not just today but tomorrow. ***Psychological Science,*** 29: 804–813.

Podolny, J. M. 1994. Market uncertainty and the social character of economic exchange. ***Administrative Science Quarterly,*** 39: 458–483.

Porac, J. F., & Thomas, H. 1994. Cognitive categorization and subjective rivalry among retailers in a small city. ***Journal of Applied Psychology,*** 79: 54–66.

Porac, J. F., Thomas, H., & Baden-Fuller, C. 1989. Competitive groups as cognitive communities: The case of Scottish knitwear manufacturers. ***Journal of Management Studies,*** 26: 397–416.

Porac, J. F., Thomas, H., Wilson, F., Paton, D., & Kanfer, A. 1995. Rivalry and the industry model of Scottish knitwear producers. ***Administrative Science Quarterly,*** 40: 203–227.

Porter, M. E. 1980. ***Competitive strategy.*** New York: Free Press.

Reger, R. K., & Palmer, T. B. 1996. Managerial categorization of competitors: Using old maps to navigate new environments. ***Organization Science,*** 7: 22–39.

Resick, C. J., Whitman, D. S., Weingarden, S. M., & Hiller, N. J. 2009. The bright-side and the dark-side of CEO personality: Examining core self-evaluations, narcissism, transformational leadership, and strategic influence. ***Journal of Applied Psychology,*** 94: 1365–1381.

Rindova, V. P., Becerra, M., & Contardo, I. 2004. Enacting competitive wars: Competitive activity, language games, and market consequences. ***Academy of Management Review,*** 29: 670–686.

Rivlin, G. 1999. ***The plot to get Bill Gates.*** New York: Crown Business.

Ruddick, G. 2016. Virgin v British Airways: Was the Corbyn saga part of the old rivalry? ***The Guardian,*** August 26: https://www.theguardian.com/business/2016/aug/26/virgin-v-british-airways-jeremy-corbyn-rivalry-richard-branson.

Sallee, B. 2017. Texas governor's next goal? Rekindle the Texas vs. Texas A&M football rivalry. ***CBS Sports,*** October 26: https://www.cbssports.com/college-football/news/texas-governors-next-goal-rekindle-the-texas-vs-texas-a-m-football-rivalry/.

Schein, E. H. 1990. Organizational culture. ***American Psychologist,*** 45: 109–119.

Scherer, F. M., & Ross, S. 1990. ***Industrial market structure and economic performance*** (3rd ed.). Boston: Houghton Mifflin.

Scott, W. R. 1995. ***Institutions and organizations. Foundations for organizational science.*** London: Sage.

Sedgwick, D. 2011. Ford's Jim Farley apologizes to GM for comments in upcoming book. ***Autoweek,*** August 2: https://autoweek.com/article/car-news/fords-jim-farley-apologizes-gm-comments-upcoming-book.

Sgourev, S. V., & Operti, E. In press. From Montagues to Capulets? Analyzing the systemic nature of rivalry in career mobility. ***Academy of Management Journal.***

Shinkle, G. A. 2012. Organizational aspirations, reference points, and goals: Building on the past and aiming for the future. ***Journal of Management,*** 38: 415–455.

Smith, K. G., Ferrier, W., & Ndofor, H. 2001. Competitive dynamics research: Critique and future directions. In M. Hitt, R. Freeman, & J. Harrison (Eds.), ***Handbook of strategic management:*** 315–361. London: Blackwell.

Smith, K. G., Grimm, C. M., Chen, M. J., & Gannon, M. J. 1989. Predictors of response time to competitive strategic actions: Preliminary theory and evidence. ***Journal of Business Research,*** 18: 245–258.

Smith, K. G., Grimm, C. M., Gannon, M. J., & Chen, M. J. 1991. Organizational information processing, competitive responses, and performance in the U.S. domestic airline industry. ***Academy of Management Journal,*** 34: 60–85.

Staw, B. M., & Sutton, R. I. 1993. Macro organizational psychology. In J. K. Murnighan (Ed.), ***Social psychology in organizations: Advances in theory and research:*** 350–384. Englewood Cliffs, NJ: Prentice-Hall.

Stinchcombe, A. L. 1965. Organizations and social structure. ***Handbook of Organizations,*** 44: 142-193.

Tesser, A. 1988. Toward a self-evaluation maintenance model of social behavior. ***Advances in Experimental Social Psychology,*** 21: 181–227.

Thomas, J. 2016. ***Shaking hands while trading punches: Exploring the paradox of rival cooperation.*** Paper presented at the annual meeting of the Academy of Management, Anaheim, CA.

To, C., Kilduff, G. J., Ordoñez, L., & Schweitzer, M. 2018. Going for it on fourth down: Rivalry increases risk-taking, physiological arousal, and promotion focus. ***Academy of Management Journal,*** 61: 1281–1306.

Tor, A., & Bazerman, M. H. 2003. Focusing failures in competitive environments: Explaining decision errors in the Monty Hall game, the acquiring a company problem, and multiparty ultimatums. ***Journal of Behavioral Decision Making,*** 16: 353–374.

Tsai, W., Su, K. H., & Chen, M. J. 2011. Seeing through the eyes of a rival: Competitor acumen based on rival-centric perceptions. ***Academy of Management Journal,*** 54: 761–778.

Tully, S. 2006. Guidant: To the victor goes . . . the bill. ***Fortune*** (European Edition), 153: 17.

Uzzi, B. 1997. Social structure and competition in interfirm networks: The paradox of embeddedness. ***Administrative Science Quarterly,*** 42: 35–67.

Wade, J. B., O'Reilly, C. A., III, & Pollock, T. G. 2006. Overpaid CEOs and underpaid managers: Fairness and executive compensation. ***Organization Science,*** 17: 527–544.

Walsh, J. P., & Ungson, G. R. 1991. Organizational memory. ***Academy of Management Review,*** 16: 57–91.

Wangrow, D. B., Schepker, D. J., & Barker, V. L. 2014. When does CEO succession lead to strategic change? The mediating role of top management team change. ***Academy of Management Proceedings.***

Woodyard, C. 2001. Is American-United rivalry too friendly? ***USA Today,*** June 27: http://usatoday30.usatoday.com/money/biztravel/2001-06-27-american-united.htm.

Yip, J. A., Schweitzer, M. E., & Nurmohamed, S. 2018. Trash-talking: Competitive incivility motivates rivalry, performance, and unethical behavior. ***Organizational Behavior and Human Decision Processes,*** 144: 125–144.

Yu, T., & Cannella, A. A. 2007. Rivalry between multinational enterprises: An event history approach. ***Academy of Management Journal,*** 50: 663–684.

Zajonc, R. B. 1968. Attitudinal effects of mere exposure. ***Journal of Personality and Social Psychology,*** 9: 1–27.

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