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COMPETITION, STATUS AND MARKETS

Tejaswi Channagiri Ajit

University of Kentucky, tejaswica@gmail.com

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Tejaswi Channagiri Ajit, Student

Dr. Walter J. Ferrier, Major Professor

Dr. Kenneth R. Troske, Director of Graduate Studies

COMPETITION, STATUS AND MARKETS

DISSERTATION

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in the
College of Business and Economics
at the University of Kentucky

By

Tejaswi Channagiri Ajit
Lexington, Kentucky

Director: Dr. Walter J. Ferrier, Professor of Management
Lexington, Kentucky

2018

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ABSTRACT OF DISSERTATION

COMPETITION, STATUS AND MARKETS

Extant research within competitive dynamics recognizes a positive relationship between high levels of competitive activity and firm performance, but the cognitive and psychological antecedents to competitive activity are far less clearly understood. I explore the role of a specific psychological antecedent - status, in impacting firms' motivations to launch competitive moves against rivals. The key question, which extant literature does not seem fully equipped to answer, is when and under exactly what circumstances lower-status firms become motivated to launch action against higher-status ones and vice-versa. I use the stimulus-response model in social cognition to build theory which helps to answer the question by considering structural properties of market engagement. The specific structural property of market engagement that I focus on is market commonality, or the extent to which a rival is a significant player in markets important to a focal firm. I predict that a rival's market commonality with a focal firm and its status relative to the focal firm have independent and positive effects on the extent to which the focal firm pays attention to the rival, that a rival's market commonality with a focal firm and its status relative to the focal firm interact negatively to predict the focal firm's motivation to launch action against that rival, and that a rival's relative status and market commonality with a focal firm interact positively to predict the extent to which the focal firm pays attention to the rival. I test theory through a field study on gourmet food trucks in Lexington and an experiment through Amazon's Mechanical Turk tool. Results provide broad support for the hypotheses. Three consequences follow from my study – that high-status firms are likely to come under attack from lower-status firms with whom they do not compete in markets, that they are unlikely to be paying attention to those lower-status firms when first attacked, and that they are likely to become aware of and motivated to act against those lower-status firms only after the lower-status firms have occupied key markets. My study contributes to the literatures in competitive dynamics, status, multi-market contact, and entrepreneurial action.

KEYWORDS: Competitive Dynamics, Status, Multi-Market Contact, Behavioral Strategy, Stimulus-Response Model

Tejaswi Channagiri Ajit

July 18, 2018

Date

COMPETITION, STATUS AND MARKETS

By

Tejaswi Channagiri Ajit

Dr. Walter J. Ferrier

Director of Dissertation

Dr. Kenneth R. Troske

Director of Graduate Studies

July 18th, 2018

To my beautiful and wonderful wife, Anushri.

I love you!

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INTRODUCTION

The field of competitive dynamics is concerned with inter-firm rivalry based on competitive actions and responses, the contexts of those actions and responses, and their antecedents and consequences (Chen and Miller, 2012; Smith, Ferrier and Ndofor, 2001). The emphasis on actual competitive actions and responses between firms and rivals stands in stark contrast to other approaches to competition within strategy that have either viewed competition as an aggregate property of industry structure (Porter, 1980) or have considered strategic groups based on objective (Caves and Porter, 1977) or perceptual considerations (Porac and Thomas, 1990; Porac, Thomas, Wilson, Paton and Kanfer, 1995) but have paid little attention to the possibility that there can be substantial variance in competition across firm-rival pairs within a given industry or strategic group or that characteristics of the actual exchange of competitive moves can bear upon the performance of firms and their rivals.

The theoretical roots of the area of competitive dynamics can be traced back to Austrian Economics (Jacobson, 1992; Mises, 1949). Unlike neo-classical economics that has predominantly taken a static view, the Austrian view emphasizes the market process and the role of purposeful action and market discovery by entrepreneurs (Jacobson, 1992; Kirzner, 1973). From an Austrian lens, the emphasis is not so much on equilibria, as in neo-classical economics, but on disequilibrium that is driven by the purposeful action of entrepreneurs (Jacobson, 1992). The Austrians see competitive advantage as emanating from the discovery of profit opportunities, that ensues from the learning engendered by purposeful action by entrepreneurs (Kirzner, 1973).

Consistent with views in its Austrian heritage, one of the most consistent findings within the field of competitive dynamics is the strong positive link between carrying out large numbers of competitive actions and firm performance (Chen and Miller, 2012; Smith *et al* 2001), with competitive action defined broadly as “an externally directed, specific, and observable competitive move initiated by a firm to enhance its relative competitive position” (Smith *et al*, 2001). For example, Grimm, Lee and Smith note (2006, p. 84 - 85) that Microsoft’s fifteen-year rise to power was marked by a dramatic number of product introductions, announcements, marketing and professional moves, and vertical alliances, several times as many as their closest rivals. Such competitive moves may either be intended to improve one’s competitive position in general or targeted towards specific rivals. Ferrier, Smith and Grimm noted (1999, p. 374) that firms that carry out more competitive actions “close off potential for action” by rivals and Young, Smith and Grimm noted (1996) that firms with high competitive activity build better organizational knowledge assets through the learning that ensues from such activity.

Given the clear importance of competitive action, scholars have been keenly interested in its antecedents. The overarching goal has been to understand what drives firms toward launching competitive moves, which could include moves targeted towards specific other firms or intended to gain market share in general. Past research has unearthed several antecedents including structural properties of market engagement (Baum and Korn, 1999; Chen, 1996), organizational characteristics like slack (Ferrier, 2001) and TMT heterogeneity (Hambrick, Cho and Chen, 1996), and embeddedness in networks of co-operative relationships (Gnyawali and Madhavan, 2001).

Recent research on antecedents to competitive action has highlighted the importance of a cognitive and psychological element in firms' motivations to launch action. Scholars have, for example, advanced notions such as rivalry as a psychological phenomenon (Kilduff, Elfenbein and Staw, 2010), competitive tension (Chen, Su and Tsai, 2007), identity domains (Livengood and Reger, 2010), and the structure of top management's cognitive representation of the environment (Nadkarni and Barr, 2008), as impacting the propensity to launch competitive action. While some progress has been made along this direction, scholars generally agree that our understanding of the cognitive and psychological drivers of competitive action is still very limited. For example, Livengood and Reger note (2010, p. 49) that "competitive dynamics research has largely overlooked the cognitive processes and motivations of managers" and that (p. 52) "Competitive dynamics theory is well-developed in understanding economic incentives. We know less about the role non-economic factors play in understanding competitive dynamics." Although the larger fields of strategic management and organization theory have long recognized the importance of considering psychology when attempting to understand decision-making within organizations (Cyert and March, 1963; Hambrick and Mason, 1984), competitive dynamics research has only more recently begun paying attention to the role of cognition and psychology as antecedents to firms' competitive behavior.

In my dissertation, I focus on the role of status as a cognitive and psychological antecedent to competitive action. It is well recognized that most groups of individuals, teams and firms are characterized by the presence of status hierarchies. Through these hierarchies, some actors are accorded higher esteem and social worth than others (Chen *et*

al, 2012; Piazza and Castellucci, 2014). Specifically, in the context of firms, a casual glance within different industries and business settings reveals that firms within them vary in the extent to which they are prestigious and admired and respected.

While past performance or quality of goods and services may play a role in determining status, status is a distinct concept (Chen *et al*, 2012; Piazza and Castellucci, 2014) that is often only loosely coupled with past firm performance or actual (as opposed to *perceived*) quality of goods and services because it is influenced by such factors as the networks a firm is embedded in (Benjamin and Podolny, 1999; Podolny, 1993; Podolny, 2001) and history (Washington and Zajac, 2005). Possessing high-status, however, endows firms with distinct advantages over rivals. For example, scholars have noted that the signaling role of status lowers transaction costs when exchange partners are confronted with uncertainty (Podolny, 1993, 2001), that an association with a high-status producer may be something that market participants value (Benjamin and Podolny, 1999; Washington and Zajac, 2005), and that the greater awareness of high-status firms lowers advertising costs (Podolny, 1993).

A key question in this context is *what role a firm's position within a status hierarchy plays in determining its motivation to launch competitive action against rivals at the same or other positions within the hierarchy*. In my dissertation, I use the term “rival” to refer broadly to any other firm within the business context of a focal firm. “Rival” in my dissertation thus refers to any potential rival within a business context and not necessarily to a psychologically salient one as articulated, for example, in Kilduff *et al* (2010). The question is an important one to answer because motivation to launch action as just defined is the cognitive precursor to actual competitive action. Not only are

status hierarchies ubiquitous, but extant theory and empirical evidence suggest that status hierarchies should impact the motivation to act against specific rivals.

Extant research, however, makes equivocal predictions on how status hierarchies impact actors' motivations to compete with one another. Theories such as system justification (Jost and Banaji, 1994; Jost, Banaji and Nosek, 1994) point to a tendency for even those who stand to be disadvantaged by a social hierarchy recognizing and respecting the need for it and not questioning the positions of the actors who are advantaged, given a prevailing legitimized belief that hierarchies in general are good and fair for society (Jost *et al*, 2004; Magee and Galinsky, 2008). Indeed, some research (Hahl and Zuckerman, 2014) points out that if low-status actors did not acknowledge the positions of higher-status actors there would only be ingroup-outgroup distinctions rather than status hierarchies. Moreover, given the signaling role of status, low-status firms face clear disincentives when trying to compete with higher-status-ones, for example in transaction and advertising costs (Benjamin and Podolny, 1999; Merton, 1968; Podolny, 1993). Finally, it is believed that high-status firms would lose their exclusivity and status if they competed with lower-status ones (Podolny, 1993; Washington and Zajac, 2005). These arguments collectively point to a tendency for status hierarchies to be relatively uncontested, self-fulfilling and sticky (Magee and Galinsky, 2008).

On the other hand, a major stream of research points out that higher-status actors are more closely watched (Anderson *et al*, 2001; Graffin *et al* 2013) and envied (Fiske, 2011) and past research has explicitly acknowledged the presence of conflict within status hierarchies (Bendersky and Hays, 2012; Flynn, 2003; He and Huang, 2011; Huberman *et al* Gould, 2003). Although lower-status firms face disincentives when

attempting to compete with higher-status rivals, there are clear benefits to doing so as well, as just competing with higher-status rivals can result in a status boost for a focal firm irrespective of the outcome of competition (Washington and Zajac, 2005), and if the focal firm did win the battle there would be not just economic benefits but a motivational boost as well (Kilduff *et al*, 2010).

Indeed, a close examination of many scenarios from the real world reveal clearly that status hierarchies do not go uncontested. Japanese automobiles were considered low-status in the US in the 1960s and 1970s but that did not deter Japanese automakers from going after the then higher-status Detroit automakers like GM and Ford and winning market share against them. In the Silicon Valley, high-status firms like Google and Apple face threats every day from start-ups that are relatively unheard of and that threaten to erode their status positions and market share. In addition, there are several instances of the opposite phenomenon as well where high-status firms launch competitive moves against lower-status ones. With the introduction of its A-class hatchback series several years ago, Mercedes attempted to make inroads into territory that was traditionally reserved for relatively lower-status car makers.

Although academic research has noted status contests and there are several examples of such contests in the real world, the question of when and under what circumstances lower-status firms become motivated to break through the inertia and launch competitive moves against higher-status ones and vice-versa is a largely unresolved one. While some scholars (e.g. Gould, 2003; He and Huang, 2011) have tried to answer the question by predicting that ambiguity within status hierarchies breeds conflict, anecdotal examples from the business world clearly point to even very clear

status hierarchies being contested sometimes. It is an important question to the area of competitive dynamics given that the outcome, intent to launch competitive action, has major consequences for firm performance relative to rivals (Ferrier *et al*, 1999; Hambrick, Cho and Chen, 1996; Young *et al*, 1996).

In my dissertation, I help to answer this question by considering the role of a rival's market commonality with a focal firm, which refers to the extent to which the rival is a significant player in markets important to the focal firm. I use the stimulus-response model in social cognition (Dutton and Duncan, 1987; Dutton and Jackson, 1987; Keisler and Sproull, 1982) to build theory which makes several key predictions. First, I predict that a rival's market commonality with a focal firm, and the status of that rival relative to the focal firm, have independent and positive effects on the extent to which the focal firm pays attention to the rival. Second, I predict that the relative status of a rival and the rival's market commonality with the focal firm interact negatively to predict the focal firm's motivation to launch action against that rival. Finally, I predict that the relative status of a rival and market commonality interact positively to predict the extent to which the focal firm pays attention to that rival. I test theory in two empirical settings – a field study on gourmet food trucks in Lexington, KY and an experiment through Amazon's Mechanical Turk tool. The theory receives broad support in both contexts. Three consequences follow from my theory – that high-status firms are likely to come under attack from lower-status firms with whom they do not directly compete in markets, that they are unlikely to even be aware of those firms at the time they are first attacked, and that they are likely to become aware of and motivated to attack those lower-status firms only after the latter have occupied key markets.

In addition to competitive dynamics, my dissertation also contributes to the literatures in status, multi-market contact and entrepreneurial action. Although scholars within the area of status have acknowledged status contests (Bendersky and Hays, 2012; He and Huang, 2011), the question of when and under what circumstances low-status actors become motivated to compete with higher-status ones and vice-versa has gone largely unanswered.

A key theoretical underpinning within multi-market contact has been the idea of forbearance (Baum and Korn, 1996; Edwards, 1955) which refers to firms exercising restraint on attacking rivals that they meet in multiple markets. There is keen interest in contingencies that moderate the forbearance hypothesis (Yu and Cannella, 2013) and my dissertation highlights the role of status differences as such a contingency.

Finally, the area of entrepreneurial action (Gregoire, Barr and Shepherd, 2010; McMullen and Shepherd, 2006) recognizes that opportunity recognition represents the start of the process leading to entrepreneurial action. Scholars in this stream have acknowledged that our understanding of the processes by which strategic decision-makers recognize opportunities is very limited, given the considerable objective and subjective interpretations involved in opportunity recognition (Gregoire *et al*, 2010). My dissertation contributes to this stream, too, by suggesting that whether launching competitive action against a rival at the same or a different position in the status hierarchy is considered an opportunity by decision-makers or not may be contingent on structural properties of market engagement.

LITERATURE REVIEW

Competitive Dynamics

Competition is one of the most fundamental notions in strategy. Indeed, the academic discipline of strategic management is concerned primarily with *competitive* advantage, or how firms create and sustain advantage over competitors (Nag, Hambrick and Chen, 2007). The various streams within strategic management have attempted to answer this question through different lenses. Early work in strategy (Porter, 1980), for example, drew from the Structure-Conduct-Performance paradigm in Industrial Organization Economics (Bain, 1956; Mason, 1939). The S-C-P paradigm held that an industry's structural characteristics, for example, product differentiation and economies of scale, erected barriers to entry for potential newcomers and helped industries earn returns above what would be expected in a perfectly competitive scenario (Bain, 1956). While structure was presumed to influence performance through conduct, several scholars noted that the paradigm was inadequate. The field of strategy is concerned with the firm level of analysis, and is interested in how decisions by top managers may impact performance, but the S-C-P paradigm treats conduct as a black box and firms as homogenous (McWilliams and Smart, 1993), given its roots in Industrial Organization Economics.

Given these inadequacies, later work highlighted firm-level heterogeneity in such areas as resources and capabilities (Barney, 1991; Wernerfelt, 1984) and CEO and top management team characteristics (Hambrick and Mason, 1984), as key predictors of competitive advantage. While they moved away from treating firms within an industry as

homogenous, most of these views still took a static approach to competitive advantage. What was lacking was recognition of the possibility that the market process, i.e., the actual exchange of moves and countermoves (e.g. Chen, Smith and Grimm, 1992; Smith *et al* 1991) itself can have significant impact on firms' performance relative to rivals.

A key premise in Competitive Dynamics, the area within which this dissertation is situated, is that characteristics of *how* a firm competes in markets can endow it with competitive advantage (Chen and Miller, 2012; Smith *et al* 2001). Key research questions within competitive dynamics include the antecedents and consequences of delayed responses from rivals (Chen *et al*, 1992), the antecedents and consequences of high levels of competitive activity (Ferrier *et al*, 1999; Young *et al*, 1996), the antecedents and consequences of carrying out a wide variety of competitive actions (Connelly *et al*, 2017; Miller and Chen, 1996), and the impact of specific properties of competitive action sequences on firm performance (Ferrier, 2001).

For example, key and consistent findings are positive associations between the length of time taken by rivals to respond to a focal firm's competitive moves and the focal firm's performance, and between high levels of competitive activity and firm performance (Chen and Miller, 2012; Smith *et al* 2001). I proceed to review the theoretical roots of this stream of research, studies at different levels of action aggregation, studies of antecedents to competitive action and response, cognitive and psychological antecedents, and the stimulus-response model within social cognition that I use when developing theory in my dissertation and whose variant, the Awareness-Motivation-Capability framework, has been used extensively while building theory in

competitive dynamics in general. I end by noting a specific puzzle that my dissertation eventually helps solve.

Theoretical Roots

Competitive Dynamics is rooted in the tradition of Austrian Economics (Hayek, 1945; Kirzner, 1973; Mises, 1949). While mainstream economics is mostly interested in equilibria, Austrian economics is interested in disequilibrium and more specifically in the role of the market process. For example, the Austrians hold that, at a given point in time, individual market participants are taking decisions based on incomplete knowledge, and that entrepreneurs who learn from purposeful action discover arbitrage opportunities (Kirzner, 1973). The notion of purposeful action is thus considered critical both to the market process and to gains for individual market participants. Indeed, Jacobson noted (1992, p. 785) that

“The Austrian School highlights profits not as the result of monopoly power but rather as the consequence and the incentive for discovery and innovation. Under this view, the goal of strategy formulation centers not on limiting competitive forces but rather on entrepreneurial discovery.”

In this context, Joseph Schumpeter’s views (1934, 1942), have been a major influence on strategy and competitive dynamics research. Schumpeter differed from traditional Austrian Economics by acknowledging the existence of equilibria. However, his emphasis on “creative destruction” is in agreement with Austrian views. In Schumpeter’s view, the entrepreneur’s innovation disrupts the market and moves it away from equilibrium. While the entrepreneur earns profits from doing so, the success of the

innovation spawns imitation that erodes economic profits. Once again, purposeful action by the entrepreneur is at the heart of the continuous creation and destruction of competitive advantage.

One other area that merits mention is Hypercompetition (D'Aveni, 1995). This area emphasizes that the pace of change in business today is greater than ever before and that it is important for firms to disrupt rather than sustain their existing advantages in defensive ways. Like competitive dynamics, Hypercompetition too is based on Austrian thoughts and views. As with Austrian economists and competitive dynamics scholars, an overarching theme within Hypercompetition is to de-emphasize actions like building entry barriers and Bainian market power and to emphasize entrepreneurial discovery (D'Aveni, 2010).

In the next section, I proceed to review research in competitive dynamics. There has been work at three different levels of action aggregation – action-response dyads, repertoires, which are collections of actions, and sequences, which are collections of actions that take order and timing into account.

Action-Response Dyads

This is the oldest stream of research within competitive dynamics and is often considered the most basic and concrete level at which competitive interaction occurs (Chen and Miller, 2012). Starting from the mid-1980s, scholars were especially concerned with how firms could launch competitive action while delaying responses from rivals (Chen *et al*, 1992; MacMillan, McCaffery and Van Wuk, 1985; Smith *et al*, 1991). The motivation for these studies was past work (Nelson and Winter, 1982) that

had concluded that delayed responses from rivals would provide a focal firm with a longer temporal window to benefit from launching a competitive move.

Studies along this direction largely converged to support a positive link between a focal firm's performance and the length of time taken by rivals to respond (Smith *et al*, 2001). In addition, these studies unearthed characteristics that predicted the likelihood and speed of response including, for example, action characteristics such as whether the initial action was a strategic or tactical one, degree of organizational commitment to the initial action, importance to the rival of the markets under attack (Chen *et al*, 1992) and visibility of the initial action (Young *et al*, 1996). For example, Chen *et al* found (1992) that strategic as opposed to tactical actions elicited fewer and slower responses and that, when attacked in their key markets, competitors reacted slowly.

The Repertoire

Based on a view of strategy as a “pattern in the stream of decisions” (Mintzberg, 1978), this stream studies sets of competitive actions launched by firms over time (Connelly *et al*, 2017; Ferrier *et al*, 1999; Miller and Chen, 1994) and by doing so attends to issues of context (Chen and Miller, 2012). Scholars have been especially interested in such characteristics of repertoires as the *overall level* of competitive activity (Ferrier *et al*, 1999; Miller and Chen 1994), the extent to which the repertoire consists of a small versus large number of action types, that is, *simplicity* (Connelly *et al*, 2017; Ferrier *et al*, 1999; Miller and Chen, 1996), and the degree to which actions within repertoires depart from industry norms (Miller and Chen, 1996).

This stream has produced several consistent findings. First, larger levels of competitive activity have generally been linked to better firm performance (e.g. Ferrier *et al*, 1999; Hambrick *et al*, 1996; Young *et al*, 1996). Competitive action simplicity seems to generally have a negative impact on performance (Ferrier *et al*, 1999; Miller and Chen, 1996), although very recent work (Connelly *et al*, 2017) finds that complexity (the opposite of simplicity) hurts short-term performance and has an inverted U-shaped relationship with long-term performance, that is, complexity in that study seemed to benefit firms up to a certain point beyond which it began hurting them.

Given the clear link between repertoire characteristics and firm performance, several studies, including those above, have also explored antecedents. The range of antecedents considered has been very broad and includes top management team characteristics (Hambrick *et al*, 1996), firm size (Chen and Hambrick, 1995), ownership structure and executive compensation (Connelly *et al*, 2017), past performance and market growth (Miller and Chen, 1994), and breadth of competitive experience and the age of the firm (Miller and Chen, 1996). For example, Hambrick *et al* (1996) found that heterogenous top management teams exhibited greater propensity for action and that their actions were of substantial magnitude but that they were less likely to respond to competitors' moves and that they were slower in both actions and responses. Miller and Chen (1994) found that good past performance contributed to competitive inertia, that is, lower levels of competitive activity.

Sequences

Ferrier (2001) conceptualized strategy as a sequence of competitive actions carried out over time. The key difference between a repertoire and sequence is that the

latter accounts for the actual order and timing of competitive moves. The study found that aggressive sequential thrusts of competitive moves can result in market share gain relative to rivals, especially if they are prolonged, and that these in turn were influenced by top management team heterogeneity, past performance, slack, and industry characteristics like barriers to entry and concentration. Later research (Rindova, Ferrier and Wiltbank, 2010), found that properties of sequences of competitive actions impacted how investors made sense of firms' competitive behavior and subsequent valuations for those firms.

While studies at the different levels of action aggregation noted above have produced results that strongly confirm that different dimensions of competitive behavior relate to firm performance, one of the most consistent findings across studies is a positive relationship between higher levels of competitive activity and firm performance (Chen and Miller, 2012; Smith *et al* 2001). This finding is consistent with the Austrian views articulated earlier that emphasize the role of purposeful action by entrepreneurs in the market process. Given that larger levels of competitive activity have generally been found to have a positive relationship with firm performance, scholars have been naturally interested in the antecedents to such competitive activity.

Antecedents to Competitive Action

Broadly, antecedents that have been identified may be grouped into four categories – (1) structural properties of industries and engagement in markets, (2) organizational, (3) relational, and (4) cognitive and psychological antecedents. I review the first three classes of antecedents in this sub-section and devote a separate sub-section

to cognitive and psychological antecedents, given that that is the area to which my dissertation contributes.

Structural properties of industries and engagement in markets

Porter (1979, 137) noted that “the essence of strategy formulation is coping with competition” and that “the state of competition in an industry depends on five basic forces.” Porter went on to emphasize the role of entry barriers, the bargaining power of buyers and suppliers, the threat of substitute products, and the extent of jockeying among incumbents as determining both the nature and degree of competition within an industry. The Structure-Conduct-Performance paradigm in industrial organization economics formed the theoretical basis for many of these predictions (Sherer and Ross, 1990). Porter’s original predictions subsequently found strong empirical support. For example, Porter predicted that low industry growth would precipitate greater competition and that high concentration would result in low competitive activity and subsequent research largely confirmed these predictions (Schomburg, Grimm and Smith 1994, Young *et al*, 1996). Ferrier (2001) found that firms in competition-buffered industry environments carried out fewer actions and Schomburg *et al* (1994) found that firms in industries with low barriers to entry engaged in larger numbers of competitive actions.

In addition, Caves and Porter (1977) introduced the notion of “mobility barriers”. They noted that industries consisted of strategic groups. For example, in the airline industry, hub-and-spoke (e.g. United) and point-to-point carriers (e.g. Southwest) have markedly different strategies and belong to different groups within the industry. They noted that firms would face barriers when moving across strategic groups and that higher mobility barriers would attenuate competition across groups.

Scholars have also been keenly interested in properties of markets that impact propensity for action and properties of repertoires. For example, Miller and Chen found (1994) that firms that competed in diverse markets were likelier to engage in tactical actions, and that firms that competed in fast-growing markets were likelier to engage in strategic actions. Miller and Chen (1996) found that diverse markets were negatively related to simplicity within competitive repertoires.

Aspects of the legal and institutional environment have had a major impact on the extent of competition as well (Scherer and Ross, 1990). For example, the Sherman Act, which was passed in 1890, explicitly prohibited firms from collusion, thereby lowering the opportunity for firms to form certain types of collaborative agreements that mitigated competition. In addition, anti-trust law has been strongly concerned with high levels of industry concentration and possible price-fixing (Salop and White, 1988). The importance of the legal and regulatory environment is underscored in a study by Smith and Grimm (1987). They studied responses to firms following railroad deregulation and found that most firms changed strategies following deregulation and that the firms that did change outperformed those that did not.

Given that firms often meet each other in more than one market, research within the area of multi-market contact (Yu and Cannella, 2013) has studied how contact across multiple markets impacts firms' propensities to launch action against one another. The foundation for this research was laid by the economist Edwards (1955) who suggested that firms that meet each other in multiple markets were likely to exercise forbearance in acting against each other because of the fear of retaliation across multiple markets. Economists later noted that certain conditions were necessary for mutual forbearance to

come into effect, e.g. heterogeneous firms, markets and competitive advantages (Bernheim and Whinston, 1990).

Consistent with forbearance arguments, Chen (1996) theorized that market commonality, or the degree to which a rival is a significant player in markets important to a focal firm, would attenuate the likelihood that the focal firm would launch action against that rival. A slew of studies has tested how contact across multiple markets impacts firms' propensities to launch competitive action against rivals (Baum and Korn, 1996, 1999; Gimeno and Woo, 1996, 1999; Yu, Subramaniam and Cannella, 2009). While the forbearance proposition has found broad support, there is increased interest in contingencies that moderate the forbearance hypothesis (e.g. Yu *et al*, 2009). It is also worth noting that, while the term "mutual forbearance" has often been used, scholars clearly recognize the possibility of asymmetry, that is, that a firm's pressure to forbear from attacking a rival may not be the same as the pressure felt by the rival to forbear from attacking the focal firm (Chen, 1996).

Organizational Antecedents

Scholars have noted several organizational antecedents including slack (Ferrier, 2001), TMT characteristics (Ferrier, 2001; Hambrick *et al*, 1996) and size (Chen and Hambrick, 1995) as impacting the propensity for competitive behavior. For example, Chen and Hambrick (1995) found that small firms had higher levels of competitive activity but that they were low-key and secretive when executing actions. Many of these studies have also theorized and tested links between levels of competitive activity and firm performance, generally finding a positive link.

Scholars have also examined the influence of organizational characteristics like past performance, age and structural complexity. Chen, Katila, McDonald and Eisenhardt found (2010) that the relationship between past performance and subsequent competitive moves depended on the type of market. They found that, while high-performers were conservative in established markets and bold in new ones, low performers were bold in established markets and conservative in new ones. While many scholars have theorized that age should lead firms to carry out narrower repertoires of actions that worked in the past and fewer actions, empirical findings have not found consistent support for this argument (e.g. Miller and Chen, 1994, 1996). In a study within the airline industry, Smith, Grimm, Gannon and Chen found (1991) that structural complexity of firms was negatively related to the propensity to respond to competitors' moves.

Hambrick, Cho and Chen (1996) found that top management teams that were heterogenous in functional backgrounds, company tenure, and education exhibited stronger propensity for action and that the actions were of substantial magnitude, but that they were slower in carrying out those actions. In this context, an area that deserves mention is upper echelons theory (Hambrick and Mason, 1984; Hayward and Hambrick, 1997; Chatterjee and Hambrick, 2007). While not explicitly situated within the competitive dynamics literature, a slew of studies has confirmed that the personality, values and experiences of top managers (Hambrick and Mason, 1984) impact their propensity for specific types of competitive actions. For example, Hayward and Hambrick (1997) noted that CEOs with hubris, or exaggerated self-confidence, tended to pay higher premiums for acquisitions and Chatterjee and Hambrick noted (2007) that narcissistic CEOs were likelier to take bold, visible and grandiose actions like large

acquisitions. Finally, scholars have also been interested in how ownership structure influences different dimensions of competitive behavior. Connelly *et al* found (2017) that firms with dedicated institutional owners tended to carry out more complex repertoires.

Relational Antecedents

Several scholars (Brandenburger and Nalebuff, 2011; Gnyawali, He and Madhavan, 2006; Gnyawali and Madhavan, 2001) have noted that competition is often embedded within networks of co-operation. In fact, the phenomenon is widespread as several firm alliances are between competitors (Ketchen, Snow and Hoover, 2004). In this context, studies have found links between firms' positions in networks of collaboration and their propensity to launch competitive action. For example, Gnyawali *et al* (2006) found that a focal firm's centrality in the network of collaborative relationships impacted volume of competitive actions.

Cognitive and Psychological Antecedents

Since the mid-2000s, competitive dynamics scholars have become more keenly interested in the cognitive and psychological antecedents to competitive action. Unlike the rest of strategy and organization theory, where notions of psychology impacting strategic decision-making are quite old (Cyert and March, 1963; Hambrick and Mason, 1984), competitive dynamics has only more recently emphasized the role of cognition and psychology as antecedents to competitive action. While some past work (Porac and Thomas, 1990; Porac *et al* 1995; Reger and Huff, 1993) did emphasize a cognitive aspect in how firms defined strategic groups, that work did not recognize the large variance in competitive perceptions across firm-rival dyads within a strategic group. Chen *et al* (2007) raised this concern and introduced the notion of *competitive tension*, which they

defined as the “strain between a focal firm and a rival that is likely to result in the firm taking action against the rival”. They found competitive tension to be influenced by factors such as the rival’s scale, attack volume and capability to contest.

Livengood and Reger (2010) introduced the notion of *identity domain*, which they defined as “members’ consensual understanding of the competitive arena that best demonstrates and reinforces organizational identity in the marketplace.” They theorized that a firm’s identity domain impacts proclivity to act or to respond to rivals’ actions.

Nadkarni and Barr (2008) theorized and found that managerial cognition mediated the relationship between industry characteristics and competitive behavior. Specifically, they found that industry velocity influenced the structure of top management’s representation of the environment, which in turn influenced the speed with which they acted on environmental events.

Kilduff *et al* (2010), advanced the notion of “rivalry as a psychological phenomenon.” They argued that the “subjective intensity of rivalry” was influenced by such factors as prior competitive interactions and similarity in attributes. They tested and found support for these ideas on data from NCAA basketball.

Collectively, these studies have laid a foundation for a deeper examination of cognitive and psychological factors that drive competitive action. In my dissertation, I contribute to this stream of research by examining the role of a new psychological antecedent – status. I proceed to review the stimulus-response model within social cognition, that I use when building theory in my dissertation.

Stimulus-Response Model

Broadly, the stimulus-response model within social cognition (Dutton and Duncan, 1987; Dutton and Jackson, 1987; Keisler and Sproull, 1982) is a framework that helps build theory on how organizational decision-makers respond to various stimuli. Indeed, its variant, the Awareness-Motivation-Capability, or AMC framework (Chen, 1996; Chen *et al*, 2007), described in greater detail below, has been extensively used by competitive dynamics scholars when studying antecedents to competitive action and response. The stimulus-response model highlights two processes as vital to how organizational decision-makers respond to the stimuli that confront them. First, given that strategic decision-makers are bombarded with stimuli and have limited cognitive capacity, they selectively choose to pay attention to just some of those stimuli (Cyert and March, 1963; Keisler and Sproull, 1982; Simon, 1957). Second, once they have selected out stimuli to focus their attention upon, they interpret those stimuli, that is, they infuse stimuli with meaning (Dutton and Jackson, 1987; Keisler and Sproull, 1982). That in turn determines how they respond to the selected stimuli.

While the above is a broad framework, scholars have been keenly interested in exactly what determines which stimuli decision-makers pay attention to and how they infuse those stimuli with meaning. Work in the first stream has, for example, unearthed aspiration-level triggers (Cyert and March, 1963), market commonality (Chen, 1996), and identity domains (Livengood and Reger, 2010) as determining which stimuli decision-makers pay attention to. Work in the second stream has, for example, studied factors like CEOs' personality, values and experiences (Chatterjee and Hambrick, 2007; Chin,

Hambrick and Trevino, 2013; Hambrick and Mason, 1984) and problem framing (Dutton and Jackson, 1987; Kahneman and Tversky, 1984; Wiseman and Gomez-Mejia, 1998).

A theoretical framework that is derived from the stimulus-response model in social cognition and that has been widely used in competitive dynamics research is the Awareness-Motivation-Capability, or AMC framework (Chen, 1996; Chen *et al*, 1992; Livengood and Reger, 2010). This framework recognizes that a firm's decision to act or respond to a competitor's move is based on the firm's level of *awareness*, *motivation* to act, and its *capability*, that is, its stock of resources. While awareness is a pre-requisite for a competitive move (Chen, 1996), motivation and capability determine whether a firm would launch competitive action or respond to an action from a rival (Chen, 1996; Chen *et al*, 2007). Competitive Dynamics scholars have often viewed awareness, motivation and capability as the three key drivers of competitive action and have used it to build theory on how specific factors would influence firms' proclivities to act or respond to the moves of other firms (Chen, 1996; Chen *et al*, 1992; Chen *et al*, 2007; Livengood and Reger, 2010). For example, Chen *et al* (1992) used the framework in developing theory to predict how firms would respond to actions from rivals. Chen (1996) used the AMC framework in predicting the effects of market commonality and resource similarity on motivation to compete and respond to rival's moves, and Chen *et al* (2007) used the framework in predicting how a rival's relative scale, attack volume and capability to contest influence the tension, or strain, a focal firm perceives about a rival.

More recent research has made an important conceptual refinement to the AMC perspective. Livengood and Reger noted (2010) that many past studies looked at awareness, motivation and capability in isolation from one another. For example, Chen

(1996) saw market commonality as influencing *awareness* and *motivation* and resource similarity as influencing *capability*. Chen *et al* (2007) saw a rival's relative scale as influencing awareness and the rival's attack volume as influencing motivation. However, Livengood and Reger (2010) noted that awareness, motivation and capability can influence each other in subtle ways. For example, a focal firm's motivation to launch action against a high-status rival may be attenuated by its recognition of the possibility of retaliation and of the high-status rival having access to greater capabilities and resources. It is this more recent gestalt perspective that I adopt in my dissertation.

In addition, I assume that *awareness* is not dichotomous but varies along a continuum. There is a clear difference between a situation where decision makers have a cursory awareness of a rival and one where they closely follow that rival's moves and actions, that is, they *watch* the rival closely and the rival is *salient* to them. Awareness in my dissertation thus refers to the extent of attention (Ocasio, 1997) that a firm bestows upon a rival. In my dissertation, my interest is in examining how a rival's market commonality with a focal firm and the rival's status relative to the focal firm and their interactions influence a focal firm's *awareness* of and *motivation* to launch action against the rival.

In past research in competitive dynamics, awareness and motivation have mostly been inferred from observations of patterns of competitive actions and responses (e.g. Chen *et al*, 1992; Chen *et al*, 2007). There is no study that has explicitly measured awareness and motivation. My dissertation sets a precedent within competitive dynamics research by measuring these two variables through a survey as opposed to inferring them

from patterns of competitive actions and responses. Measuring these variables directly helps lend credence to theorizing based on the AMC framework.

While I do theorize the role of capability as well, I do not measure “hard” capabilities explicitly. In the empirical context of food trucks in Lexington, there is certainly variance in “soft” resources such as status as well as on dimensions such as social capital, particularly relationships with location owners. These form an explicit focus of my study. However, there is far less variance in “hard” resources and capabilities as have been typically operationalized in other competitive dynamics studies (e.g. Chen, 1996; Chen *et al*, 2007). For example, in their empirical context of the airline industry, Chen *et al* (2007) consider fleet structure in attempting to determine whether two airlines have similar bundles of resources and capabilities. While they serve different types of food, there is relatively much less variance among food trucks in Lexington on dimensions such as sophistication of equipment and technology and scale.

While I use the AMC framework in building theory in my dissertation, I also use a framework developed by Dutton and Jackson (1987) that extends the stimulus-response model to incorporate cognitive categorization theory (Mervis and Rosch, 1981; Rosch and Mervis, 1975). Dutton and Jackson (1987) contend that, when infusing stimuli with meaning, two broad categories that strategic decision-makers assign stimuli to are “opportunity” and “threat”. Stimuli that are positive and perceived as gain situations and where decision-makers feel in control are labeled “opportunities” and those that are negative or loss situations and where decision-makers do not feel in control are labeled “threats”. Dutton and Jackson (1987) posit that situations classified as opportunities are likelier to elicit externally directed actions (such as competitive actions).

In my dissertation, I posit that a rival's relative status and market commonality with a focal firm act together to determine whether the focal firm perceives the situation with respect to that rival as an opportunity or threat and that that in turn predicts the focal firm's motivation to launch action against the rival. While I use Dutton and Jackson's framework, I note that all hypotheses are fully consistent with the AMC framework too. Where I employ Dutton and Jackson's model, I also apply the AMC framework in parallel and arrive at the same hypotheses.

I focus on a new cognitive and psychological antecedent to competitive action – status. There is an interesting and unresolved puzzle in this context. While past research has laid out very clearly that high-status firms enjoy several benefits (Benjamin and Podolny, 1999; Podolny, 1993; Podolny, 2001; Washington and Zajac, 2005), there has been nearly no consideration of lower-status firms' competitive reactions to a high-status firm's privileges. If high-status firms were to come under competitive attack from lower-status firms, that may undermine the extent to which they can continue to enjoy their privileges.

On the one hand, it is plausible that low-status firms are more aware of and more motivated to compete with higher-status rivals but on the other hand, the greater capability of higher-status firms to garner resources and capabilities in the event of a war (Benjamin and Podolny, 1999; Merton, 1968; Podolny, 1993) should make lower-status firms fear retaliation. Nevertheless, anecdotal evidence from the business world does indicate that higher-status firms often come under attack from lower-status ones, as did General Motors from Toyota in the 1960s and 70s and IBM from Lenovo in the 1990s. Given the several examples from the business world of low-status firms launching

competitive moves against high-status ones makes one wonder why those specific low-status firms were less concerned with retaliation. In my dissertation, I help to solve this puzzle by examining the role of structural properties of market engagement as a contingency that helps predict when lower-status firms become motivated to act against high-status ones (and vice-versa).

Status

In this section, I begin by providing a definition and detailed description of status as it applies to theory development within my dissertation. I then distinguish it from related concepts like reputation, legitimacy and celebrity. Following that, I provide a brief review of the literature on status in the context of firms and consider the role status plays in strategy research in general. I then consider predictions that extant research makes on status and motivation to launch competitive action, ending with a puzzle that my dissertation helps solve.

Definition and Meaning of Status

Status, which has its roots in sociology and social psychology, refers to an actor's relative esteem, prestige, respect and social standing in the eyes of other actors within a collective (Chen *et al*, 2012; Magee and Galinsky, 2008). Status as just defined is known to exist at multiple levels – individuals (Bendersky and Shah, 2012), groups (Tajfel and Turner, 1986) and firms (Podolny, 1993; 2001) and is known to have consequences for outcomes important to organizational and management research at each of those levels. My dissertation is primarily concerned with status hierarchies among firms.

It is important to note that, in the context of firms, financial performance and the actual (as opposed to *perceived*) quality of goods and services are only loosely coupled with status, endowing the term “status” with a distinct conceptual significance. Podolny noted (1993) that because status is based on such factors as a producer’s ties to other market participants, as well as on several signals as for example charitable donations and market share, it is often only loosely coupled with the actual quality of goods and services. Washington and Zajac noted (2005) that because factors like history and networks are important to the emergence of status, status hierarchies are not necessarily strongly correlated with hierarchies based on past performance either.

However, scholars have found that possessing high-status has major positive consequences for firms, given that status plays a signaling role when exchange partners are confronted with uncertainty (Podolny 1993; 2001), that other market participants are likely to seek associations with high-status firms (Benjamin and Podolny, 1999) and that high-status producers have lower advertising costs because consumers are likely to be aware of their product and service offerings (Podolny, 1993).

It is important to note that status is a *perceptual* phenomenon and that status hierarchies are actively constructed in the minds of those who observe the concerned firms (Magee and Galinsky, 2008; Piazza and Castellucci, 2014). While certainly there can be variation in how individuals perceive a status hierarchy, there is generally a strong consensual agreement of a status hierarchy that is inter-subjectively agreed upon and stable (Graffin *et al*, 2013; Magee and Galinsky, 2008; Weber, 1978; Zajac and Washington, 2005).

Finally, Chen *et al* note (2012) that status may be achieved by one of two means – dominance or prestige. While dominance-based status is achieved through means such as aggression and coercion, prestige-based status is based on respect, admiration and deference, and, in the context of firms, achieved through means such as history (Washington and Zajac, 2005) and associations (Podolny, 1993; Benjamin and Podolny, 1999). Status as I refer to it in this dissertation is prestige-based.

Status and Related Concepts

I note that status as I define it is distinct from three other concepts – reputation, celebrity and legitimacy. While the concept of status is rooted in sociology and social psychology, reputation is rooted in economics (Piazza and Castellucci, 2014). Firms build a reputation for specific aspects of their products and services (Sorenson, 2014). Building a reputation consists of emitting signals that satisfy two properties (Spence, 1973; 1974) – (1) the signal is at least partly within the firm’s control and (2) it is less expensive for a firm that is strong on the specific dimension on which it seeks to build a reputation to emit the signal in comparison with a firm that is weak on that dimension. For example, firms build reputations for the quality of their products by offering warranties on them, with warranties satisfying the criteria for signals as noted above. Reputation as just outlined is different from status because status refers to position within a social hierarchy. While some past research has confounded the two, scholars increasingly recognize that they are different concepts (Sorenson, 2014).

Also, the concept of status is different from that of legitimacy. Legitimacy is rooted in institutional theory and refers to conformance with prevailing norms and cultural beliefs (DiMaggio and Powell, 1983). A firm can be a legitimate entity without

being high-status. Finally, status is distinct from celebrity, which refers to a “dramatized reality constructed by the media” (Rindova, Pollock and Hayward, 2006). A high-status firm is not necessarily a celebrated firm.

I choose to study status because extant research in status within sociology and social psychology clearly points to status influencing awareness, motivation and capability, the three key drivers of competitive action. It is well-known that high-status actors are more closely watched (Anderson *et al*, 2001; Kovacs and Sharkey, 2014), pointing to the role of status in influencing firms’ awareness of rivals. Research also points to status hierarchies impacting the motivation to act against others, although arguments are equivocal with one school suggesting greater motivation to launch action against actors of similar status (Magee and Galinsky, 2008) and another suggesting greater motivation against higher status actors (Washington and Zajac, 2005). Finally, status is well-known to influence the ability to garner resources and capabilities (Merton, 1968) and is a resource itself given that it is valuable, rare, hard-to-imitate and non-substitutable (Barney, 1991). Although extant research clearly points to status influencing awareness, motivation and capability, there has been little systematic study of the role of status in influencing competitive behavior among firms (a notable exception is Washington and Zajac (2005)).

Status in the Context of Firms

Although status has a long history in sociology and social psychology, it was the work of Podolny and colleagues that laid the foundation for subsequent research in the context of firms and markets. Podolny (1993, p. 830) defined status as “the perceived quality of a producer’s products in relation to the perceived quality of that producer’s

competitors' products," emphasizing the role of status as a *signal* of quality. Some scholars (e.g. Piazza and Castellucci, 2014) have noted that Podolny's definition of status is somewhat confounded with reputation (as there is no mention of a rank order or hierarchy). Nevertheless, Podolny highlighted that status hierarchies are decoupled from *actual* quality for several reasons. First, he noted that purchasers of a higher-status producer's products would remain unaware of changes to the quality of a lower-status producer's products because they would not encounter the products from the lower-status producer. Second, status is determined at least partly by a firm's ties with other market participants. Finally, status is based on several signals including assets, charitable contributions and market share. Importantly, he noted that status position circumscribed revenue and cost profiles for a producer. Not only do high-status producers have better revenue opportunities given that status is a signal of quality and something valued in and of itself, but high-status producers have advantages on the cost side as well including lower transaction costs (since status serves as a signal of quality) and advertising costs (since market participants tend to be already aware of high-status producers).

Benjamin and Podolny (1999) subsequently studied over 10,000 affiliation decisions made by 595 wineries over a ten-year period. They found that high-status wineries derived greater benefit from subsequent high-status affiliations than did low-status wineries. Notions of reputation in economics hold that investments in quality at a given point in time affect market opportunities at a subsequent time. Their study contrasted economic notions of reputation with the sociological notion of status and found that investments in quality benefit higher-status producers more than they do lower-status ones. Podolny (2001), used an empirical sample of venture-capital firms and

found that the value of status increased with the uncertainty confronted by a firm's exchange partners.

While several studies have subsequently examined status in the context of firms and markets, I note prominent examples. Some studies have examined status in the context of inter-firm alliances. For example, Chung, Singh and Lee (2000) found status similarity to be linked to alliance formation. McPherson, Smith-Lovin and Cook (2001) found similar results and noted that especially in the face of uncertainty, organizations formed exchange relations with other similar-status organizations. Stuart, Hoang and Hybels (1999) found that young firms that had high-status alliance partners performed better than young firms that did not possess such partners. On the other hand, Jensen (2006), introduced the concept of "status anxiety." He studied client defections from the accounting firm Arthur Andersen following a well-publicized scandal and found that concerns about being devalued motivated firms to dissociate themselves from a tainted firm.

An important study on status is that by Washington and Zajac (2005). Using an empirical sample from NCAA basketball, this study found that, when controlling for recent performance, the basketball teams that enjoyed high-status privileges were those that had an appropriate historical legacy and perceived affiliations with other high-status teams. An important conclusion from the study is that because status is influenced by such factors as history and networks, it is often decoupled from performance, making it important and interesting to study status as an independent construct.

Collectively, work on status in the context of firms points to several benefits that firms come to acquire from possessing high-status and having ties to other high-status

firms. High-status firms have opportunities on both the revenue (Podolny, 1993) and cost (Podolny, 1993, 2001) fronts, realize better gains from investments in acquiring resources and capabilities (Benjamin and Podolny, 1999), and from other market participants wanting to form ties with them (Benjamin and Podolny, 1999; Washington and Zajac, 2005).

Specifically, in the context of research within strategic management, status seems to play two noteworthy roles. First, status may be considered a *resource* that firms possess (Wernerfelt, 1984; Barney, 1991). It is often *valuable* and *rare*. In addition, status is *inimitable*. The inimitability may stem from any of the mechanisms described in Barney (1991) – unique historical conditions, causal ambiguity and social complexity. While history is known to play into status (Podolny, 1993; Washington and Zajac, 2005), there is also some element of causal ambiguity as it is not fully clear how actors come to attain status. Finally, status is socially complex given that it derives from affiliations and positions within social networks (Benjamin and Podolny, 1999; Podolny, 1993, 2001). Second, status may also be considered a mobility barrier (Caves and Porter, 1977) as a key feature of high-status firms is that they occupy premium niches within a market that are hard for other firms to penetrate (Merton, 1968; Podolny, 1993).

Status and Motivation to Launch Competitive Action

Extant research makes equivocal predictions on how status influences the motivation to launch competitive action against other firms. Social hierarchies in general perform two major functions – (1) provide incentives and (2) facilitate co-ordination (Magee and Galinsky, 2008). Because social hierarchies perform these functions, significant evidence indicates that even lower-status actors are often likely to exhibit a

psychological tendency to rationalize the *status quo* and accept the positions of higher-status actors (Jost and Banaji, 1994; Jost *et al* 1994). In addition, there is strong evidence to indicate that higher-status actors have an advantage in the pursuit of opportunities (Merton, 1968; Podolny, 1993) which would automatically create disincentives for low-status actors when they attempt to compete with high-status ones. For example, Podolny noted (1993, 2001) that high-status firms face lower transaction and advertising costs and that their status has signaling value when exchange partners are confronted with uncertainty. Finally, scholars generally predict that the opposite situation of high-status firms launching competitive action against lower-status ones is unlikely to occur as that may dilute their status and make them less exclusive (Podolny, 1993; Washington and Zajac, 2005). These reasons are often collectively cited to explain why status hierarchies become self-fulfilling and sticky and relatively uncontested (Magee and Galinsky, 2008).

On the other hand, a significant stream of research indicates that higher-status actors are likelier to be watched by others (Anderson *et al*, 2001; Graffin *et al*, 2013) and envied (Fiske, 2011). In addition, several studies have explicitly documented status conflicts (Bendersky and Hays, 2012; Gould, 2003; He and Huang, 2011). Moreover, there is no dearth of examples in the media of low-status firms within an industry launching competitive moves that challenge higher-status rivals and interestingly, high-status firms attack lower-status rivals too sometimes.

A natural puzzle in this context is when and under what circumstances each of these views applies. Are status hierarchies self-fulfilling, sticky and relatively uncontested? Or are high-status firms likely to come under attack from lower-status ones? Although some scholars (Gould, 2003; He and Huang, 2011) have tried to resolve the

puzzle by suggesting that ambiguity within status hierarchies may breed conflict, there are several scenarios in the business world where clear status hierarchies too are contested. In the PC industry, for example, Lenovo did not hesitate to make moves to enter IBM's markets in the 1990s despite IBM being a clearly higher-status firm. In my dissertation, I help to solve this puzzle by theorizing and testing the role of market commonality as a contingency in the relationship between the relative status of a rival and a focal firm's motivation to launch competitive action against the rival.

THEORY

As noted earlier, both streams of research - competitive dynamics and status, leave open unanswered puzzles about the relationship between a rival's status relative to a focal firm and the focal firm's motivation to launch competitive action against that rival. The first puzzle is from a competitive dynamics perspective. Given that extant research points to high-status entities garnering greater attention in general (Graffin *et al*, 2013; Kovacs and Sharkey, 2014), it must follow that firms generally pay greater attention to high-status rivals. Applying the AMC framework, high-status rivals are thus likely to pass the awareness filter of lower-status firms.

However, the relative status of a rival with respect to a focal firm has opposing effects on the motivation and capability components. A lower-status firm should be motivated to launch competitive action against a high-status rival, as doing so would rub off positively on the focal firm's status (Washington and Zajac, 2005) and there are clear economic (Podolny, 1993) and psychological (Kilduff *et al*, 2010) benefits to winning a battle with a high-status rival. However, given that status is linked to the ability to garner resources and capabilities (Merton, 1968; Podolny, 1993), a lower-status firm should perceive itself as being less capable of attack, given the possibility of retaliation. That should in turn exert downward pressure on motivation to act. As noted earlier, however, there are several examples from the business world of lower-status firms launching competitive moves against high-status rivals, throwing open the question of why those specific lower-status firms were less concerned with retaliation.

The second puzzle originates in the literature on status. It is well known that high-status actors in general come to receive greater opportunities and rewards (Merton, 1968)

and that high-status producers have advantages on both the revenue and cost fronts (Podolny, 1993). That should automatically create disincentives for lower-status producers who want to compete with higher-status ones. In addition, most current research almost universally assumes that the opposite phenomenon of a high-status firm attempting to compete with a lower-status one would result in the former losing some of the privileges of exclusivity and status (Podolny, 1993; Washington and Zajac, 2005). Extant research would thus predict that high-status firms have disincentives from attempting to launch action against lower-status ones as well. Collectively, these arguments paint a picture of status hierarchies being sticky, self-fulfilling and relatively uncontested (Magee and Galinsky, 2008).

Another strand of research (e.g. Bendersky and Hays, 2012; Gould, 2003; He and Huang, 2011), however, explicitly discusses status conflicts and several anecdotal examples from the business world point to high-status firms facing the possibility of attack from lower-status ones. Although some scholars, notably Gould (2003), have suggested that ambiguity within status hierarchies sparks conflict, many anecdotal examples of conflict in the business world arise within very clear status hierarchies. Research in status thus does not seem to be fully equipped to answer the question of when and under what circumstances lower-status firms become motivated to compete with higher-status ones and vice-versa.

In my dissertation, I help to solve these puzzles by theorizing and testing the role of structural properties of market engagement (Baum and Korn, 1999; Chen, 1996) as a contingency that predicts when lower-status firms become motivated to compete with higher-status ones and vice-versa. I bring the literatures in competitive dynamics, status

and multi-market contact together using the stimulus-response model in social cognition.

My theoretical model is depicted in Figure 1.

Figure 1: Theoretical Model

As depicted above, several key predictions emerge from my model. First, I predict that a rival's market commonality with a focal firm is positively related to awareness, which in my dissertation refers to the attention the focal firm pays to the rival. Second, I predict that a rival's market commonality with a focal firm is negatively related to the focal firm's motivation to launch action against that rival. Third, I predict that a rival's status relative to a focal firm is positively related to the focal firm's awareness of the rival. Fourth, I predict that a rival's market commonality with a focal firm interacts negatively with the rival's status relative to the focal firm to predict the focal firm's motivation to launch action against the rival and finally, I predict that a rival's market commonality with a focal firm interacts positively with the rival's status relative to the focal firm to predict the attention the focal firm pays to the rival.

The rest of my theory section is organized into three sections. The first section develops theory that makes predictions on the main effects of a rival's market commonality with a focal firm on the focal firm's awareness of and motivation to launch action against the rival. The second section makes predictions on the main effects of the relative status of a rival on the focal firm's awareness and motivation, noting the conflicting predictions with motivation. In the third and final section, I develop theory that makes predictions on the interactive effects of market commonality and rival's relative status on a focal firm's awareness of and motivation to launch action.

Market Commonality

As noted earlier, a framework that competitive dynamics scholars have often used when attempting to analyze the impact of different antecedents on competitive action and response is the Awareness-Motivation-Capability framework (Chen, 1996; Chen *et al*, 1992). A basic premise is that a firm's decision to act or respond to a rival's action is based on three key drivers – the extent to which the firm is *aware* of the rival, is *motivated* to act or respond to the rival, and is *capable* of acting or responding to the rival.

In applying the AMC framework in past competitive dynamics research, scholars have treated awareness, motivation and capability in slightly different ways. For example, Chen *et al* (1992) referred to them as they applied to competitive actions, that is, in predicting competitive response, they held that characteristics of the initial competitive action would impact the extent to which a firm became aware of the *action*, was motivated to respond to it, and perceived itself as capable of doing so. In a similar vein, Marcel, Barr and Duhaime (2011) considered cues embedded within competitive *actions*.

Chen (1996) and Chen *et al* (2007) however, used it to mean awareness of, motivation to launch action against and capable of acting against *a specific rival*. Livengood and Reger (2010) applied the terms more broadly and used them to refer to awareness of, motivation to respond to, and capability to respond to specific threats, actions and firms. In my dissertation, I use the terms in a similar manner to Chen (1996) and Chen *et al* (2007) and refer to awareness of, motivation and capability to act against a specific *rival*. I do so as, like Chen (1996) and Chen *et al* (2007), my theoretical interest is predicting awareness and motivation at the level of the firm-dyad. I also note that I use the term “rival” to refer broadly to any other firm within the broader business context. “Rival” in my dissertation thus refers to any potential rival and not necessarily to a salient one or to one whose defeat involves psychological stakes for a focal firm as articulated, for example, in Kilduff *et al* (2010).

In addition, while past studies within competitive dynamics have theorized the role of awareness, motivation and capability, no study has measured these variables. For example, past research has theorized that contact across multiple markets decreases the *motivation* for competitive action against a rival and has found that multi-market contact does lower market entry and exit rates and proclivity for action in general (Baum and Korn, 1996, 1999; Gimeno and Woo, 1996, 1999, Yu *et al*, 2009). However, the absence of operationalization and measurement of the motivation variable allows, for example, the possibility of an unobserved third variable simultaneously influencing both multi-market contact and propensity for competitive action. A key advancement in my dissertation is that both theory and method focus on *awareness* and *motivation* as outcome variables, thus enhancing validity.

Before I proceed to develop theory leading to hypotheses predicting how market commonality would influence both awareness of and motivation to launch action against a rival, I review literature relevant to market commonality.

Literature Review

Market commonality refers to the extent to which a rival is a significant player in markets important to a focal firm (Chen, 1996; Baum and Korn, 1999). The notion of market commonality originated in the literature in multi-market contact (Baum and Korn, 1999; Bernheim and Whinston, 1990; Gimeno and Woo, 1996). It is very common for firms to encounter each other in multiple geographic or product markets. Multi-market contact refers to such scenarios, those where a given firm meets a rival in more than one distinct market (Karnani and Wernerfelt, 1985).

A key theoretical underpinning within multi-market contact research has been the mutual forbearance hypothesis. Edwards (1955) noted that a firm that meets a rival in multiple markets has a disincentive from competitive action against that rival in any of those markets because of the fear of retaliation across multiple markets. In addition, Simmel (1950) advanced the notion that firms that compete in multiple markets recognize their dependence on one another and chalk out “spheres of influence.” Bernheim and Whinston (1990) showed that mutual forbearance would not come into effect in the presence of perfect monitoring and identical firms and markets and that it required firms to have imperfect information and to be heterogenous and to compete in heterogenous markets for collusive gains to emerge. Although the term “mutual forbearance” was originally used to refer to this situation, later research clearly recognized asymmetry,

meaning that a firm's motivation to attack a rival may be different from that rival's motivation to attack the focal firm (Baum and Korn, 1999; Chen, 1996).

Several studies have supported the basic argument that multi-market contact reduces rivalry. For example, Baum and Korn (1996), on a study of commuter airlines in California, found that multi-market contact lowered airlines entry and exit from each other's markets. Baum and Korn eventually (1999) developed a more nuanced argument and found support for an inverted U-shaped relationship between multi-market contact and the rate of market entry and exit. The study, however, remained consistent with the argument that high-levels of multi-market contact tend to exert a dampening effect on rivalry. Gimeno and Woo found (1996) that increases in multi-market contact reduced rivalry.

It follows from the above studies that market commonality, defined as the extent to which a rival is a significant player in markets important to a focal firm, should attenuate the focal firm's motivation to launch action against the rival. Several studies have tested this proposition and have generally found support (Baum and Korn, 1996, 1999; Gimeno and Woo, 1996; Yu *et al*, 2009). In addition, studies have theorized and found that, while a focal firm may forbear from launching competitive action against a rival that has high market commonality with the focal firm, the rival is likely to react decisively and swiftly if the focal firm does launch competitive action (Chen, 1996; Young *et al*, 2000; Yu and Cannella, 2007).

Scholars have been especially interested in contingencies that moderate the forbearance hypothesis. For example, Jans and Rosenbaum (1997) found that the impact of multi-market contact on forbearance was greater in more concentrated markets and

Baum and Korn (1996) noted that the negative relationship between multi-market contact and market entry and exit was even stronger in concentrated markets. Yu *et al* (2009) found that government policy had an impact on the relationship between multi-market contact and forbearance.

A contingency that is especially relevant to my dissertation is full observability. Although there is some research that has examined the consequences of relaxing this assumption (e.g. Greve, 2008), it is an assumption that pervades much research within multi-market contact. In a recent review of the multi-market contact literature, Yu and Cannella (2013) noted that past research has assumed that defections from equilibrium can be perfectly detected and punished, and made a call for research that relaxes this assumption. Status is known to be a cognitive heuristic in search (Kovacs and Sharkey, 2014) thus making it important to study its role in imperfect observability.

Market Commonality and Awareness

Awareness as I define it in my dissertation is the extent to which a firm pays attention to and watches a given rival. Both the AMC framework and the underlying stimulus-response model in social cognition posit that, before a stimulus (in this case the presence of a rival) is processed and acted upon, it needs to pass a perceptual filter (Dutton and Jackson, 1987), that is, it needs to have been noticed in the first place. Indeed, Chen (1996) noted that awareness is a pre-requisite for a competitive move against a rival. Given that decision makers have limited information processing capacity, they are selective in what they perceive and use filters (Dearborn and Simon, 1958) in deciding what to focus their attention upon. I assume that awareness of a rival is not dichotomous but varies along a continuum. There is a clear difference between a situation

where decision makers have a cursory awareness of a rival and one where they closely follow that rival's moves and actions, i.e., they *watch* the rival closely and the rival is *salient* to them. Awareness in my dissertation thus refers to the extent of attention (Ocasio, 1997) a firm bestows upon a rival.

In attempting to understand what determines which stimuli managers notice, some research in the past emphasized aspiration-level triggers (Billings, Milburn and Schaalman, 1980; Cyert and March, 1963) and detection errors because of a high “signal-to-noise ratio” (Keisler and Sproull, 1982; Sproull, Weiner and Wolf, 1978). More recently, organizational scholars have been keenly interested in how repeated competitive interactions condition which rivals firms pay attention to (Johnson *et al*, 2006; Kilduff *et al*, 2010). Although, as noted above, a situation where a rival has a major presence in markets important to a focal firm is often characterized by less intense rivalry, and by the firm and rival having chalked out “spheres of influence” (Baum and Korn, 1996, 1999; Edwards, 1955; Gimeno and Woo, 1996, 1999), such a situation is often a reflection of a settling down of past competitive encounters (Baum and Korn, 1999; Bernheim and Whinston, 1990; Yu and Cannella, 2013). While a focal firm may forbear from launching action against a rival that is a significant player in markets important to a focal firm, the rival is nevertheless likely to be *salient* to the focal firm, that is the focal firm is likely to be *aware* of the rival.

In experiments, Johnson and colleagues (2006) found that, when competitive reward structures were set up and experimental conditions were then changed to reward co-operation, participants continued to compete even though co-operation was in their best interest. Extending these ideas, Kilduff *et al* (2010) theorized and found that the

experience of competition leaves a “competitive residue” that persists after the battle has ended. Once again, while it may be argued that high market commonality is accompanied by less intense rivalry, and that firms competing in multiple markets may forbear from launching action against each other, repeated engagement in markets is likely to make a rival salient to a focal firm. A focal firm is thus likely to be strongly *aware* of a rival that has a major presence in markets important to itself, even though it may forbear from launching action against the rival. Consistent with this reasoning, Reger and Palmer (1996) found inertia in firms’ categorization of competitors.

Given that it refers to the extent to which a rival is a significant player in markets important to a focal firm, market commonality thus plays a major role in determining which rivals a focal firm pays attention to. As noted above, given that decision-makers at firms are boundedly rational (Cyert and March 1963), and possess finite cognitive capabilities, they are unlikely to be paying attention to all possible competitors within a business context. Research in competitive dynamics holds that market relationships condition which rivals a focal firm notices and watches (Baum and Korn, 1999; Chen, 1996) so that rivals that have a strong presence in markets important to a focal firm are likelier to be salient to that firm.

Hypothesis 1: A rival’s market commonality with a focal firm is positively related to the focal firm’s awareness of the rival.

Market Commonality and Motivation

High market commonality which, as defined above, occurs when a rival is a significant player in markets important to a focal firm, is generally believed to attenuate

the focal firm's motivation to launch competitive moves against the rival. Fear of retaliation and subsequent impact on key markets would lead a focal firm to exercise restraint when faced with a rival that it meets in multiple markets (Chen, 1996; Edwards, 1955). Baum and Korn (1996) summarized the argument as "Close competitors are not the most intense rivals." Firms that meet each other in multiple markets are likely to recognize their interdependence and tacitly collude by allowing each other to be superordinate in some markets in exchange for similar favorable treatment in other markets (Baum and Korn, 1996; Edwards, 1955; Simmel, 1950). Mutual forbearance is thus an implicit agreement to a "live-and-let-live" system.

Chen (1996) laid more nuance on this argument by emphasizing that forbearance may not be mutual and that competition may be asymmetric. He drew on the work of Tversky (1977) and laid out that statements of similarity are directional and depend on which elements are the subject and referent. Applied to inter-firm competition, Chen noted that firm A's motivation to attack firm B may be very different from firm B's motivation to attack firm A. Competitive relationships are thus asymmetric. In my dissertation, I explicitly account for the possibility of such asymmetry by treating the two directions within a dyad as different. In fact, I illustrate eventually that the asymmetry has interesting consequences for the emergence of inter-firm competition.

Bernheim and Whinston (1990) laid out several conditions for multi-market contact to result in forbearance, implying that multi-market contact may not result in collusive gains in all situations. For example, they laid out heterogeneous markets, firms and competitive advantages as necessary conditions. While there have been studies that have investigated contingencies that moderate the mutual forbearance hypothesis (e.g.

Greve, 2008; Yu *et al*, 2009), the broad view (summarized in Yu and Cannella, 2013) that market commonality as I define in it in my dissertation has a dampening effect on competition.

Hypothesis 2: A rival's market commonality with a focal firm is negatively related to the focal firm's motivation to launch action against the rival.

Status

As already noted, extensive research within status does make predictions on how it would influence a firm's awareness of or motivation to launch action against a rival. Although there is a significant literature on status hierarchies in the context of firms (Benjamin and Podolny, 1999; Chung *et al*, 2000; McPherson *et al*, 2001; Podolny, 1993; Podolny, 2001; Washington and Zajac, 2005), a systematic examination of how status hierarchies influence competitive behavior at the level of firms is, however, almost completely missing. While competitive dynamics scholars recognize the importance of competitive behavior for firm performance and the importance of cognitive and psychological antecedents, there has not been an attempt to build a bridge between the academic conversations of status scholars and those in competitive dynamics, despite research in status pointing to several ways in which status hierarchies may influence competitive behavior. This is a key and important gap that I seek to fill in my dissertation.

In this section, I build theory which makes predictions on the main effects of status on both awareness and motivation. As elucidated earlier, I note that the predictions about motivation are equivocal, that is, two different schools of thought within status

make conflicting predictions. In the subsequent section, I build theory which predicts that considering the role of market commonality helps to resolve the conflict.

Relative Status of Rival and Awareness

As noted earlier, a basic premise underlying theory within social cognition is that individuals have limited ability to process all the information they are confronted with and thus use several criteria to narrow down what they pay attention to (Keisler and Sproull, 1982; Simon, 1957). Prior research very strongly supports that status is such a criterion and that higher-status actors are more closely watched. Anderson *et al* (2001, p. 117) noted that “status involves asymmetrical amounts of attention, such that those higher in the hierarchy receive more attention than those lower in the hierarchy...higher-status group members are more prominent and well-known and receive more scrutiny.”

Several studies have produced evidence confirming this effect (Graffin *et al*, 2013; Kovacs and Sharkey, 2014). Individuals are known to generally presume that status is associated with higher quality in some respect, and that higher-status actors warrant greater attention (Adut, 2008; Kovacs and Sharkey, 2014; Merton, 1968). For example, Kovacs and Sharkey (2014) found that books that had won a coveted award received a dramatic increase in readership, and from very broad audiences who would not have paid attention to the books had they not won that award. Graffin *et al* (2013) found that higher-status Members of British Parliament (MPs) were more likely to be targeted by different audiences for an offense. They could empirically establish that the reason a larger number of high-status MPs had to exit Parliament following a well-publicized scandal was not because the high-status MPs were more likely to be opportunistic but because they were more likely to be targeted for an offense.

It should follow then that, within a competitive context, higher-status firms should garner more attention from other firms. Specifically, Kovacs and Sharkey (2014) note that status acts as a heuristic in the process of screening, which entails identifying which other entities are worthy of closer scrutiny. Status should thus serve as a heuristic when deciding how much attention a firm pays to a rival, which leads me to my third hypothesis.

In my dissertation, I use the term “rival’s relative status” or “rival’s status relative to a focal firm” to imply a status difference that has both direction and magnitude. For example, suppose firms A, B and C have statuses (on a hypothetical scale) of 1, 2 and 5. Firm B is higher status relative to firm A but firm C is even higher status relative to firm A. Likewise, firm B is low status relative to firm C but firm A is even lower status relative to firm C.

Hypothesis 3: A rival’s status relative to a focal firm is positively related to the focal firm’s awareness of the rival.

Relative Status of Rival and Motivation to Launch Action

While there is an extensive literature on status (summarized in Chen *et al*, 2012 and Piazza and Castellucci, 2014), and several arguments made within this literature point to predictions on how a rival’s status relative to a focal firm would influence that firm’s motivation to launch a competitive move against the rival, there has been no systematic study in the context of firms. In addition, as noted earlier, consolidating the various arguments leads to an interesting puzzle because the arguments make equivocal predictions on how the relative status of a rival would impact a focal firm’s motivation to launch action. Specifically, one set of arguments points to lower motivation to launch

action against rivals that are above or below a focal firm within the status hierarchy and would predict that the motivation is greatest when the rival is of approximately the same status. However, the other prediction that emerges is that the greater the relative status of a rival, the more strongly should a firm be motivated to launch a move against the rival. I lay out these conflicting predictions as separate hypotheses. In the subsequent section, I help to resolve the equivocal nature of the predictions by introducing the role of market commonality as a contingency.

Several scholars (e.g. Benjamin and Podolny, 1999; Merton, 1968; Podolny, 1993, 2001) maintain that high-status actors in general simply have an advantage when competing with low-status ones which should automatically create disincentives for lower-status actors. When laying out the well-known “Matthew Effect,” Merton, for instance, noted (1968) that scientific discoveries that had the endorsement of a Nobel prize winner were likely to be regarded more highly, making it harder for unknown junior scientists to compete. Indeed, strong evidence in the context of firms shows that high-status firms have greater access to revenue opportunities and possess advantages in transaction and advertising costs (Podolny, 1993), that the signaling value of their high-status endows them with advantages when exchange partners are confronted with uncertainty (Podolny, 2001), and that even such actions as investments in improving quality of products and services benefit high-status more than they do low-status ones (Benjamin and Podolny, 1999).

Specifically, when applying the AMC framework (Chen, 1996; Chen *et al*, 2007), these arguments would imply that low-status firms should be motivated to launch action against high-status ones. Winning a war against a high-status rival is likely to result in a

status boost and privileges for a low-status firm. However, when considering the capability component within the AMC framework, the greater ability of the high-status rivals to garner resources and capabilities would mean that low-status firms would be less equipped to compete in the event of retaliation and may suffer damages. That should in turn exert a dampening effect on a low-status firm's motivation to compete with a higher-status rival.

Over and above the fact that low-status firms face disadvantages when attempting to compete with high-status rivals, a significant body of work asserts a social psychological tendency for even low-status actors in general to accept the presence of the hierarchy and perceive it as legitimate. One theory is especially relevant here – system justification (Jost and Banaji, 1994; Jost *et al*, 1994). System justification theory posits that even low-status actors, who stand to be disadvantaged, often exhibit a social psychological tendency to accept the status hierarchy and perceive it as legitimate. Underlying this rationalization of the *status quo* is the legitimating nature of hierarchies in general. Moreover, the fact that hierarchies serve useful functions within human societies, namely facilitating co-ordination and providing incentives, further exacerbates “hierarchy enhancing belief systems” (Magee and Galinsky, 2008).

The arguments described above collectively point to low-status firms being less inclined to launch competitive action against high-status rivals. In addition, a significant stream of research notes that high-status firms in turn are unlikely to compete with low-status ones because of the possible dilution in exclusiveness and perceived quality that would result (Podolny, 1993; Washington and Zajac, 2005). Collectively, this stream of research points to status hierarchies being largely self-fulfilling and stable (Magee and

Galinsky, 2008) and is consistent with some past studies that have found rivalry to be greatest among similar status entities (Kilduff *et al*, 2010).

I also note that this hypothesis has an independent variable that differs from the previous one and the hypotheses that follow. While the key independent variable in the previous hypothesis and the ones that follow is rival's status relative to a focal firm, or relative status, as already defined, this hypothesis has similarity in status as the independent variable. Unlike rival's relative status, similarity in status has magnitude but no direction. For example, if there are three firms A, B and C with status scores of 1, 2 and 5 on a hypothetical scale, A is more similar in status to B than is C. It is a measure of the extent to which a rival is close to a focal firm in status, irrespective of higher or lower.

Hypothesis 4a: The similarity in status between a focal firm and a rival is positively related to the focal firm's motivation to launch action against the rival.

On the other hand, there is significant evidence pointing to higher-status actors being likelier targets of attacks from other actors (Bendersky and Hays, 2012; Flynn, 2003; Graffin *et al*, 2013; Huberman *et al*, 2004). While the greater awareness of high-status firms would endow them with advantages in transactions with exchange partners, it stands to reason that high-status firms are likely to be within the awareness zones of rivals as well, given the earlier arguments that linked the relative status of a rival to awareness. Adopting a gestalt view of the AMC framework (Livengood and Reger, 2010), the intense awareness of higher status actors should intensify the motivation to launch action against them. In addition, research points to high-status actors often being targets of envy (Fiske, 2011).

As noted above, attacking a high-status actor may elicit retaliation and the AMC framework would posit that fear of retaliation (if the attacker is lower-status) should diminish the motivation to attack the high-status actor. However, most studies that have documented high-status actors being attacked have not paid explicit attention to why the lower-status actors were less concerned about retaliation in those cases. An assumption in some studies, (e.g. Bendersky and Hays, 2012) has been that the high-status actors were targeted because lower-status actors saw the obvious benefits and privileges of competing with and beating higher-status actors.

Hypothesis 4b: A rival's status relative to a focal firm is positively related to the focal firm's motivation to compete with that rival.

Relative Status of Rival and Market Commonality

The major goal of this section is to resolve the ambiguity inherent in hypotheses 4a and 4b. Although hypothesis 4a predicts that status hierarchies are likely to be self-fulfilling and stable, hypothesis 4b and several anecdotal examples from the business world point to high-status firms often coming under attack from lower-status ones. A natural question in this context is under what circumstances each of hypothesis 4a and 4b holds.

I answer this question by building theory which predicts that a rival's status relative to a focal firm interacts negatively with the rival's market commonality with the focal firm to predict the focal firm's motivation to launch action against the rival. In doing so, I help to resolve the ambiguous role of status in predicting motivation to launch action by highlighting the role of market commonality as a contingency. Interestingly, my

theory points to high-status firms being motivated to launch action against lower-status ones too under certain circumstances.

Relative Status of Rival, Market Commonality and Motivation

The stimulus-response model within social cognition holds that once a stimulus (in this case, the presence of a rival) has passed the perceptual filter, that is, once it has been noticed by decision-makers within a firm, it is labeled and categorized, with the label serving as an address to a cognitive category (Dutton and Jackson, 1987; Jackson and Dutton, 1988; Mervis and Rosch, 1981; Rosch and Mervis, 1975). A long tradition of research has established that two broad labels that strategic decision-makers use when they categorize stimuli are “threat” and “opportunity”, with threats associated with loss and negative situations with the decision-makers within the focal firm perceiving themselves as having less control and opportunities associated with positive and gain situations with decision-makers perceiving themselves as having more control (Dutton and Jackson, 1987; Gregoire, Barr and Shepherd, 2010; Jackson and Dutton, 1988;).

Once a rival has passed the perceptual filter, that is, once a focal firm has become *aware* of a rival, I posit that specific combinations of the rival’s status relative to the focal firm and the rival’s market commonality with the focal firm lead decision makers to evaluate the situation with respect to the rival as a threat or opportunity. All situations that involve a focal firm and a rival can be assigned to one of the cells of the 2 X 2 grid displayed below.

Rival higher status than focal firm	High IV	Low III
	Low I	High II
Low market commonality		High market commonality

Label within cell is focal firm's motivation to launch action against rival

Figure 2: The four zones

Once a focal firm is cognizant of a rival, there are four possibilities that correspond to the four zones in the above figure:

Zone 1 – the rival is lower than the focal firm in status and has low market commonality with the focal firm

Zone 2 – the rival is lower in status and has high market commonality

Zone 3 – the rival is higher in status and has high market commonality

Zone 4 – the rival is higher in status and has low market commonality

It is somewhat less likely that a rival would be in zone 1 in the first place as based on the arguments leading to hypotheses 1 and 3 above, it is less likely that the focal firm would be aware of a lower-status rival that has low market commonality with itself, given the earlier arguments that both the relative status of a rival and the rival's market

commonality with the focal firm determine whether the focal firm is aware of the rival (Anderson *et al*, 2001; Chen, 1996).

However, even if a focal firm does become aware of a rival that is lower than itself in status and has little or no presence in its key markets, it is unlikely to proceed with processing the stimulus and categorizing the situation with respect to the rival as either of “opportunity” or “threat”. There is typically little incentive for higher-status firms to attempt to compete with lower-status rivals given that doing so may hurt their own status positions and exclusivity (Podolny, 1993; Washington and Zajac, 2005) and in the absence of shared markets (Baum and Korn, 1996) there is little to gain. Hence a focal firm is unlikely to classify launching action against a lower-status, low market commonality rival as an opportunity. At the same time, a focal firm would not classify a low-status low market commonality rival as a threat as it is unlikely to perceive any loss about a lower-status rival that has little or no presence in its important markets. A rival in this zone is thus likely to be classified as relatively inconsequential. The motivation to launch action against such a rival is likely to be *low*.

These arguments are consistent with the AMC framework (Chen, 1996; Chen *et al*, 2007). Although the high-status firm would perceive itself as capable of competing with the low-status rival, motivation to launch action would be low given the possible dilution in status and the absence of shared markets.

Zone 2 corresponds to a situation where a rival is lower in status but has high market commonality with the focal firm. The key difference between zones 1 and 2 is that in zone 2, the lower-status rival has made inroads into the focal firm’s important markets. In this zone, there are clear gains to be had from beating a visible competitor.

Although some work predicts that high-status firms would lose their exclusivity and status positions if they competed with lower-status ones (Podolny, 1993; Washington and Zajac, 2005), that argument is less likely to apply in this case because by entering the markets of the focal firm, the rival has already established a market tie and association with the higher-status focal firm so the focal firm has less to lose as an association already exists. However, it has much to gain by launching action against the rival as the rival has occupied its key markets. The focal firm is likely to be better equipped to compete with the rival as its higher-status would endow it with clear advantages in the event of a war, given extant status research that has pointed out that higher-status firms and actors in general have better access to opportunities, resources and capabilities (Benjamin and Podolny, 1999; Merton, 1968; Podolny, 1993). In addition, the privileges that accrue from possessing higher-status are likely to lead decision makers at the focal firm to perceive themselves as being in control. Given that the situation is one with potential gains and where the focal firm is in control, decision-makers at the firm are likely to label and categorize the situation as an opportunity. Past research notes (Dutton and Jackson, 1987) that situations labelled as opportunities are likely to lead in turn to externally directed actions (such as competitive actions). Motivation to launch competitive action should thus be *high* within this zone.

Although many studies have found that market commonality diminishes motivation to launch action (Baum and Korn 1996, 1999; Gimeno and Woo, 1996), most of them have been based on situations where competing firms have worked out “live-and-let-live” arrangements. The arguments on market commonality leading to forbearance are often based on fear of retaliation (Chen, 1996). Fear of retaliation, however, is less

applicable for a high-status focal firm facing a low-status rival. Applying the AMC framework, the focal firm is likely to be motivated in this scenario and perceive itself as capable of launching action against the lower-status rival, rendering it likely that the focal firm will launch action against the rival.

Zone 3 corresponds to a situation where a rival is higher in status and has high market commonality with a focal firm. This situation is one where a higher-status rival has occupied a lower-status firm's key markets. The focal firm is less likely to feel in control as attempting to compete with the rival may elicit retaliation that may hurt the focal firm in its key markets (Baum and Korn, 1996; Edwards, 1955). The focal firm has much to fear if the rival retaliates given the that the rival's higher-status makes it easier for the rival to access opportunities, resources and capabilities in the event of a war (Benjamin and Podolny, 1999; Merton, 1968; Podolny, 1993) *and* that the rival has a significant presence in its key markets (Baum and Korn, 1996; Chen, 1996). It is likelier that the focal firm would perceive such a situation as a *threat* because it is a loss situation where the focal firm is unlikely to perceive itself as being in control. Theory within social cognition (Dutton and Jackson, 1987) holds that a firm is unlikely to launch an externally directed (such as a competitive) move in a situation that is perceived as a threat. Motivation to launch action against the rival would thus be *low* within this zone.

Once again, these arguments are consistent with the AMC framework. Unlike in zone 2, the rival with high market commonality in zone 3 is higher than the focal firm in status. The forbearance argument (Baum and Korn, 1996, 1999; Chen, 1996) is likely to apply in this case (from the point-of-view of the focal firm) because the focal firm has

much to fear if the rival retaliated. Motivation is thus subdued and the focal firm is unlikely to perceive itself as capable vis-à-vis the rival.

Zone 4 is a situation where a rival is higher in status and has low market commonality with the focal firm. There is a clear incentive for the lower-status firm to attempt to enter the more attractive markets of the higher-status rival. Although, as noted above, a higher-status rival would have advantages in competition, retaliation is less likely to be a concern here given that the rival is not present in the focal firm's key markets (Baum and Korn, 1996; Edwards, 1955). Moreover, if the higher-status rival retaliated against the lower-status focal firm by attempting to enter the focal firm's markets, observers are likely to perceive a dilution in the higher-status rival's status position (Benjamin and Podolny 1999; Podolny, 1993; Washington and Zajac, 2005). In this situation, decision makers at the focal firm are likely to feel in relative control and perceive potential gain. They are likely to classify the situation as an opportunity and to take externally directed competitive actions. Motivation to launch action is likely to be *high* within this zone. When applying the AMC framework, the focal firm would again be clearly motivated in zone 4, for the reasons just described. Although it may perceive lower capability to contest the rival, it is unlikely to be as concerned with retaliation in zone 4 given the absence of shared markets.

While research within the area of multi-market contact (summarized in Yu and Cannella, 2013) has often used the term *mutual* forbearance to refer to firms refraining from attacking rivals that they meet in multiple markets, some scholars (e.g. Chen, 1996) have pointed out the potential asymmetry when adopting the vantage point of the specific firms within those situations. One firm within the competitive dyad may feel greater

pressure to forbear than the other. The reasoning above is from the vantage points of decision-makers within a focal firm and points to zones 2 and 4 as situations where a focal firm is motivated to launch action and to zone 3 as one of forbearance (once again, from the view point of individual firms). It may be that actions taken by the focal firm when a certain rival is perceived to lie within zones 2 or 4 (and possible responses by the rival) may eventually lead to *mutual* forbearance at the level of the dyad.

In summary, the key arguments above are that with increasing status of the rival relative to the focal firm, decreasing market commonality leads to greater motivation to launch action *and* that with increasing market commonality of the rival relative to the focal firm, decreasing status of the rival relative to the focal firm leads to greater motivation to launch action. This effect corresponds to a negative interaction between relative status of the rival and rival's market commonality with the focal firm when predicting the motivation to launch action.

Hypothesis 5: The rival's market commonality with the focal firm and the rival's status relative to the focal firm interact negatively to predict the focal firm's motivation to compete with the rival.

Relative Status of Rival, Market Commonality and Awareness

It is strongly established (Gregoire *et al*, 2010; Jackson and Dutton, 1988; Schneider and De Meyer, 1991) that firms are likelier to notice and pay attention to threats rather than opportunities. Jackson and Dutton (1988) labeled this phenomenon the "threat bias." The reasons for a threat bias are not fully understood but empirical studies

have provided consistent support (e.g. Jackson and Dutton, 1988; Schneider and De Meyer, 1991).

While the reasoning leading to hypothesis 5 above considers rivals that have passed the perceptual filter of a focal firm, that is, that a focal firm has become aware of, and notes how different combinations of a rival's relative status and market commonality are likely to lead to different levels of motivation to launch competitive action, a key question is how much attention a firm would be paying to rivals in the different zones. This question is partially answered by hypotheses 1 and 3, as they predict the main effects of rival's market commonality and relative status on awareness.

In addition, given that firms are likelier to notice and pay attention to threats, rivals within zone 3 are likely to get more attention from decision makers within the firm than rivals in the other zones. I note here that rivals in zone 3 are not only likely to receive more attention because of the combined main effects of high-status and high market commonality with the focal firm but that there is an *interactive* effect over and above the direct effects when a rival is in zone 3 because of the tendency for decision makers to pay more attention to threats than opportunities.

In summary, rivals in zone 1 are unlikely to get much attention, rivals in zone 2 and 4 are likely to receive some attention, while rivals in zone 3 are likely to receive the lion's share of the focal firm's attention, not only because they have higher relative status and high market commonality (combined main effects from hypotheses 1 and 3), but because of the tendency to pay more attention to threats than opportunities. Put differently, with increasing relative status of the rival, increasing market commonality is

likelier to lead the focal firm to perceive the rival as a threat, and is likely to intensify the attention the firm pays to the rival.

Hypothesis 6: A rival's relative status and market commonality interact positively to determine a focal firm's awareness of the rival.

Interestingly, putting hypotheses 5 and 6 together, it stands to reason that most of a focal firm's competitive attention is focused on rivals that are of high-relative status and have high market commonality with the focal firm, that is, those within zone 3, but that the focal firm is simultaneously more likely to forbear from attacking those rivals. While a focal firm is likely to invest much competitive attention on those rivals, it is unlikely to act against them.

METHOD

I conducted two empirical studies. The main study was a field study on gourmet food trucks in the Lexington area within Kentucky and tested all hypotheses. In addition, I conducted a supplementary study that consisted of an experiment through Amazon's Mechanical Turk tool to further validate hypothesis 5, given its pivotal role. I describe each of these in turn.

Main Study – Food Trucks in Lexington

My primary empirical setting was gourmet food trucks in the Lexington area within Kentucky. Lexington has a thriving gourmet food truck scene with about thirty active food trucks at any time. These food trucks serve a very wide variety that ranges from Stoner Gourmet and Pizzas to Caribbean and Mexican foods. They tend to be at microbreweries in the evenings, office locations at mid-day and at various events.

Appendix A lists the subset of 17 food trucks that responded to the survey, with pseudonyms for the food trucks and types of food (to preserve confidentiality) and the status score of each food truck, which is the average of all other food trucks' ranking of that food truck's status.

While gourmet food trucks have been used in other studies (Sonenshein, Nault and Obodaru, 2017), the reasons for choosing them in my dissertation were manifold. Preliminary investigation suggested that food trucks in this area were characterized by the presence of a clear status hierarchy. I also learned that they could not park anywhere without permission and that the higher-status food trucks had easier access to the coveted locations. For example, Ford (pseudonym) was run by former executive chefs and was

generally considered one of the most prestigious food trucks in town. Owners of the premier micro-breweries knew and respected Ford. Ford had excellent curb appeal and served a unique gourmet menu. They often got permission to park at the premier micro-breweries on weekend nights that attracted relatively price-inelastic customers. On the other hand, Toyota (pseudonym) had far lower curb appeal, served a basic fare and had to fight very hard for slots as the owner of Toyota did not have any of the connections to the location managers or respect and admiration that Ford enjoyed.

Importantly, status is a social psychological and perceptual construct so a valid measure of status as perceived by firms within a certain context should be based on responses from the firms. It would have been very hard to get access to decision-makers at large public listed companies and measures like performance and size are *not* valid measures of status. The fact that I could survey and interview the food truck owners facilitated the measurement of status in a valid manner. In addition, the fact that I could keep track of the locations of food trucks facilitated measurement of market commonality.

A major limitation of many past studies in competitive dynamics and multi-market contact (e.g. Baum and Korn, 1996; Chen *et al*, 1992; Yu *et al*, 2009) is that they have inferred *intent* from observations of actual competitive actions and responses. Seldom have these studies surveyed or interviewed decision-makers at firms (a notable exception is Chen *et al*, 2007). For example, if firm A launched a competitive action at time $t1$ and firm B launched a similar action at time $t2$, it may not be accurate to assume that firm B responded to firm A as it is possible that both A and B were responding to general changes in industry conditions. Although some studies (e.g. Chen and Hambrick,

1995) used content analysis and labeled a move a response if it was alluded to as such in the media, that approach relies on the accuracy of media attributions. Moreover, none of these studies explicitly measured *awareness* or *motivation*. In constructing the empirical design for my study, I thus sought to improve upon prior studies by measuring these variables directly as opposed to inferring them from patterns of competitive action and response. Access to food truck owners facilitated such measurement. I hope my study will set a precedent for future competitive dynamics research.

Methodological Approach

Because the context of food trucks is relatively new in research on competition and in strategy in general, with Sonenshein *et al* (2017) being the only other study that I could identify, the methodology that I employed was the ethnographic sandwich (Ofem, Floyd and Borgatti, 2013), with a traditional quantitative field study sandwiched between two layers of semi-structured interviews. The purpose of the first layer of layer of semi-structured interviews was to understand the context and tailor the measures and methodology in the quantitative field study to be valid in the context of theory. The purpose of the second layer of semi-structured interviews was to understand the results from the field study from the perspective of respondents.

I incentivized food trucks to participate by offering to mention the name of their food truck in the Gatton Wire, a newsletter produced by the Gatton College of Business at the University of Kentucky if they participated and by offering to share interesting results and competitive insights from the study with participating food trucks.

Figure 3: Ethnographic Sandwich

First round of semi-structured interviews

I conducted semi-structured interviews with food trucks Renault, Nissan, Bugatti, Toyota and Ford (pseudonyms) at the beginning of the study to understand the context and design valid measures for the quantitative field study. Renault, Nissan, Bugatti and Toyota also took the subsequent survey hence appear in Appendix 1. Ford did not take the subsequent survey but received the highest status score for any truck. I took notes and transcribed all interviews. *All* the five food truck owners confirmed the presence of a status hierarchy among food trucks. They underscored the role of status in gaining access to the coveted locations and often at coveted times, supporting the role of status as a signal of quality (Podolny, 1993; 2001). For example, Lexington has a thriving micro-brewery scene and Thursday, Friday and Saturday at the premier micro-breweries draw relatively price inelastic consumers with deeper pockets making those slots especially attractive in revenue opportunities. Higher-status food trucks tended to have easier access to these slots. One of the food truck owners (Toyota) even explained that the higher-status food trucks knew the owners of the most coveted locations and got preferential access to them, especially at coveted times, which was confirmed in subsequent interviews with other food truck owners as well.

The food truck owners also confirmed that head-to-head competition in this context was mostly for the coveted locations and sometimes at coveted times that ensured better revenue opportunities. Of course, once a food truck got a certain location at a given time, it was still important to attract as many consumers as possible but food truck owners said they did not perceive themselves as competing with other food trucks at that stage given that the different locations were usually not close to one another. Exceptions were events where many food trucks congregated at the same place and time. In addition, there were some consumers who followed a food truck that they liked.

Some of the food truck owners initially saw the word “competition” as referring to something negative or a dislike for another food truck but when I explained to them that I was referring to “healthy competition that motivates a food truck to perform to its best” and not anything unhealthy like for example sabotaging another food truck, they all agreed that it was present.

Food trucks indicated several key success factors. The key success factors that converged across the five interviews were access to locations with better revenue opportunities, curb appeal, uniqueness of menu, price, presence on social media, and speed of service. Collectively, the interviews underscored the presence of a status hierarchy as well as competition among food trucks, especially for coveted locations.

Quantitative Field Study

Data and measures

I assembled a list of all operating food trucks in Lexington through a website on Lexington food trucks created by food truck enthusiasts, the official website of the

Lexington Beer Scene (food trucks were often present at the micro-breweries), the Facebook page of the Bluegrass Food Trucks Association, and a Facebook page created by food truck enthusiasts devoted to Lexington food trucks. I could identify 29 active food trucks. I phoned each food truck before embarking on the study asking what would be the best way to keep track of their locations. I then kept track of their locations on Twitter, Facebook, their own websites, the Lexington Beer Scene website and the Facebook page for Lexington food trucks (based on which source/s a food truck said was the best way to follow them) for 130 days over the summer and fall of 2016 (starting second half of June and ending Oct 31st).

The 29 food trucks were at 169 distinct locations over the observation period. The period over which I observed them was the peak business period (as business declines slightly in the winter). I created a matrix where each row was a food truck and each column corresponded to morning or evening of a given day. The entries in the cells were the specific locations. Appendix 2 contains an extract of this matrix, with pseudonyms for the food trucks and locations.

I sent the survey to the food trucks at the end of the period that I observed their locations. The survey had questions on status, awareness, motivation, collaboration over locations, type of food served, and price point. I piloted the survey on a set of six PhD students in Management at the University of Kentucky before rolling it out. In addition, I gathered the Facebook review ratings for all food trucks while they were taking the survey. The unit of analysis was the food truck dyad. The 17 food trucks that responded to the survey yielded 272 (17 times 16) food-truck dyads. The dependent variables, independent variables, moderators and control variables were all represented as 17 X 17

matrices. Diagonal elements were disregarded for analyses of course, as it makes little sense to examine how aware a food truck is of itself or how motivated a food truck is to attack itself.

Dependent Variables

Awareness. I measured awareness and motivation, the two dependent variables, through survey questions. The question for awareness was “This section is designed to capture the extent to which YOU are aware of, pay attention to, observe and follow the moves and goings on of particular OTHER FOOD TRUCKS. So, for each truck on the list below, please indicate whether they are firmly and consistently on your ‘radar screen’ versus whether you ignore or couldn’t care less about them”. The question was followed by 0 – 100 sliders for every food truck other than the one taking the survey with labels of “Ignore” at 0, “Watch closely” at 100 and “Keep tabs on” around 50. Cell (i, j) in the awareness matrix was the extent to which food truck i watched food truck j .

Motivation. The question for motivation to launch action was only displayed for those food trucks that the focal food truck indicated being aware of (greater than 0 on the 0 – 100 slider) as some awareness is a pre-requisite for motivation (Chen, 1996; Dutton and Jackson, 1987). The question was “This section is designed to capture the extent to which YOU feel the motivation, the urge or some pressure to compete more aggressively against particular other food trucks. More specifically, towards which of the other food trucks listed below do you feel motivated to make and carry out strategic and operational decisions that you believe will improve your food truck’s status, reputation, quality and general effectiveness? Please note that the only food trucks that appear below are those that you indicated being aware of.” The question was followed by 0 – 100 sliders for

every food truck that the focal food truck indicated being aware of with labels of “Unmotivated” at 0, “Somewhat motivated” around 50 and “Highly motivated” around 100. Cell (i, j) in the motivation matrix was the extent to which food truck i was motivated to carry out competitive action against food truck j .

Independent and Moderating Variables

Relative status of rival. When measuring status through the survey, there was the possibility that a food truck’s motivation to launch action against other food trucks would influence responses on the status question or that some third factor would influence responses to both the status and motivation questions. To circumvent this problem, I created a status score for each food truck which was the *average* of all food trucks’ ratings of its status. I measured rival’s status relative to the focal firm as the rival’s status score *minus* the focal firm’s status score. This approach helped me account for potential endogeneity and is valid based on evidence that there is usually strong consensus about an actor’s position with a status hierarchy (Anderson *et al*, 2006; Magee and Galinsky, 2008) as status is inter-subjectively agreed upon (Washington and Zajac, 2005; Weber, 1978). Supporting my approach and past research on consensus about actors’ positions within status hierarchies was strong agreement among food trucks, with a Cronbach’s Alpha of 0.833. The actual question was “Our preliminary interviews with some food truck owners suggest that food trucks in the Lexington area occupy different levels of status (a pecking order) in terms of being respected and admired, and having social standing. For each food truck in the list below (including your own), please click on the status level box that best represents how YOU perceive their level of status”. The question was followed by a list of all food trucks and a five-point scale from status

ranging from very low (1) to very high (5). Cell (i, j) in the “relative status of rival” matrix was the average of all food trucks’ ratings of j ’s status *minus* the average of all food trucks’ ratings of i ’s status.

Similarity in status. I operationalized similarity in status, the key independent variable in hypothesis 4a as the absolute value of the differences in the status scores of a focal firm and a rival. This measure is of course a reversed score of similarity.

Rival’s market commonality with focal firm. As outlined in the theory sections, I defined market commonality as “the degree of presence that a competitor manifests in the markets where it overlaps with a focal firm” (Chen, 1996). Broadly, market commonality has been operationalized in three different ways in prior literature (Yu *et al*, 2009).

Market level measures capture the degree of multi-market contact among firms serving a market (Jans and Rosenbaum, 1996). Firm-in-market measures capture the degree of multi-market contact between a focal firm and its focal market competitors (e.g. Baum and Korn, 1996). Dyad-level measures reflect the overall degree of multi-market contact between two firms in all markets in which they are present (e.g. Baum and Korn, 1999; Chen, 1996). Given the dyadic level of analysis in my study, the last type of

operationalization was the natural one. Dyadic measures of market commonality have in turn been operationalized in two different ways. While some earlier measures (e.g.

Gimeno and Woo, 1996) were based on counts of the number of markets in which two firms competed, more recent research (e.g. Yu and Cannella, 2007) recognizes that it is critical to account for the strategic significance of each market to the focal firm,

rendering as appropriate fine-grained measures that account for both a rival’s presence in a focal firm’s markets *and* the importance of those markets to the focal firm (e.g. Chen,

1996; Yu and Cannella, 2007). For example, Baum and Korn (1999, p. 261) noted that “It is not sufficient that the absolute number of market contacts is high; it is necessary that firms perceive the contact as an important part of their competitive environment”.

Against this backdrop, I used a measure adapted from Chen (1996). In my dissertation, market commonality that food truck B has with food truck A (direction is important because it is an asymmetric measure) is based on two factors – (1) the relative importance of different markets to A and (2) the extent of B’s presence in each of those markets. The general formula that I used for market commonality is adapted from Chen (1996). I defined food truck B’s market commonality with food truck A as:

$$\sum_{i=1}^n \left[\left(\frac{p_{ai}}{p_a} \right) * \left(\frac{p_{bi}}{p_i} \right) \right]$$

where n = number of markets served by A over observation period

p_{ai} = number of days that A is at market i

p_a = number of days that A is at any market

p_{bi} = number of days that B is at market i

p_i = number of days that any food truck is at market i

A key question in this context is the definition of a market. It seems that the notion of a market from the vantage point of a firm is to some extent a cognitive construct (Baum and Korn, 1999). To ensure robustness, I ran three sets of models with different assumptions of what constitutes a market. In one set of models, I considered each location to be a market. Semi-structured interviews indicated that at the breweries, the Thursday, Friday and Saturday evening slots were more coveted than others so I ran another set of models that distinguished this set at breweries from other evenings. Finally, I ran models that treated a location-day of week pair (e.g. Mondays at UK Healthcare) as

a market. I refer to these three measures as market commonality¹, market commonality², and market commonality³ respectively.

I considered all 29 food trucks when determining market commonality using the above formula. That resulted in a 29 X 29 matrix. I then extracted the 17 X 17 market commonality matrix corresponding to the food trucks that responded to the survey. Importantly, I did *not* drop the location data for the other 12 food trucks (that did not respond) when computing market commonality as that would have resulted in distorted measures.

I noted that there were very few locations (mostly certain events) that had food trucks in both the morning and the evening rendering it redundant to distinguish these two (mornings and evenings) as markets. The office locations tended to have food trucks for lunch and the microbreweries tended to have food trucks in the evenings. Cell (i, j) in the market commonality matrix was food truck j 's market commonality with food truck i . It is important to note that market commonality as just defined is asymmetric. A rival's market commonality with a focal food truck is not necessarily the same as the focal food truck's market commonality with the rival.

Control Variables

In building the set of control variables, I was motivated by two major considerations. I sought to include variables that (1) helped me account for alternative explanations and (2) that predicted the outcomes (awareness and motivation) so that I could generate more precise estimates of the impact of rival's relative status, market

commonality and their interactions, given that they would only have to account for residual variance (Angrist and Pischke, 2008).

In keeping with the above spirit, dyad-level competitive dynamics research has generally controlled for dyad-level variables that help to account for alternative explanations or are related with dependent variable. For example, Chen *et al* (2007) controlled for objective structural tension when predicting perceived competitive tension to rule out the alternative explanation that objective structural tension was driving the results. Specifically, in my study, it was important to control for performance differences. Studies that have predicted the effects of status (or status differences) on an outcome have usually controlled for performance (or performance differences) to isolate the effect of status (or status differences) and rule out the alternative explanation that performance (or performance differences) was driving the effects (e.g. Washington and Zajac, 2005).

Past research has also found that a firm's position within the collaboration network circumscribes competitive action opportunities available to the firm (Gnyawali and Madhavan, 2001; Gnyawali, He and Madhavan, 2006), which necessitated that I account for a food truck's position in a network of collaboration. Over and above these two variables, I included other variables that I considered important in this specific context. I describe each control variable that I used and the rationale for including that control variable below.

Differences in Facebook ratings. Status differences may be correlated with visible measures of performance so there was the possibility that the real reason for the awareness of and motivation to launch action against another food truck was differences in performance as opposed to in status. Unlike public-listed firms, none of the food trucks

in my sample, all of which were privately owned, had publicly visible measures of revenues or profits, making it unlikely that they were driving the results. However, food trucks' Facebook review ratings did represent a publicly visible measure of performance. To account for this alternative explanation, I controlled for differences in Facebook ratings. Cell (i, j) in the Facebook matrix was the natural log of (because the distribution of Facebook review ratings was skewed) food truck i 's Facebook review rating minus the natural log of food truck j 's Facebook review rating.

Collaboration. Given that the food trucks may have helped one another access locations, there was the possibility that a focal food truck felt less motivated to launch action against a rival in zone 3 of figure 1 because of fear of losing support in accessing locations. To account for this alternative explanation, I included whether the focal food truck received such help from the rival as a control variable. I asked all food trucks in the survey which other food trucks they phoned if they knew of an opportunity at a location that they couldn't take. I coded cell (i, j) in the collaboration matrix to one if food truck j indicated providing help to food truck i as just described and to zero otherwise. I followed this approach rather than asking the focal food truck whether they received help to rule out potential endogeneity.

Differences in price points. There was the possibility that any effect of the relative status of the rival was in fact because of differences in price points. Past research notes that high-status firms can charge a premium for their products and services given the signaling value of status and that products and services from a high-status firm are more coveted (Benjamin and Podolny, 1999; Podolny, 1993). To account for this alternative explanation, I ascertained price differences from a survey question asking the food truck

approximately how much they charged for a meal excluding beverages. I then included as a control the matrix of price differences in which cell (i, j) was what i charged for a meal minus what j charged.

In addition, I included two control variables with the intent of generating more precise estimates of my independent variables and moderators, given that I saw the possibility that these two variables may impact awareness and motivation. Controlling for these two variables left my independent variables and moderators with having to explain residual variance, lowering the standard errors of the regression estimates.

Similarity in type of food. I controlled for whether the focal food truck and rival served the same type of food. I asked them what type of food they served in the survey. Cell (i, j) in the food type matrix was coded to one if food trucks i and j served the same type of food and to zero otherwise. Past research (Zuckerman, 1999) has underscored the general psychological importance of the categories to which firms belong, necessitating a control for whether food trucks served the same type of food.

Awareness. I controlled for awareness in all models with motivation as the dependent variable. Given that I only displayed the motivation question for those food trucks that a focal firm indicated being aware of (greater than zero on a 0-100 scale), including awareness as a control left my independent variables and moderators with having to only explain residual variance thus generating more precise estimates.

Analyses and results

All analyses are at the dyadic level, from the point of view of a focal firm viewing a specific rival. I tested hypotheses 1, 3 and 6 first. They all share the same dependent

variable – the focal firm’s awareness of the rival. I ran three sets of models with the three different measures of market commonality. I then tested hypotheses 2, 4a, 4b, and 5 that share the same dependent variable – the focal firm’s motivation to launch action against the rival. Again, I ran three sets of models with the three different measures of market commonality.

Given that the unit of analysis was the food truck dyad, I could not use OLS as dyadic data violate the assumption of independence of observations. To overcome this challenge, I used the Quadratic Assignment Procedure (Krackhardt, 1988). QAP does away with the assumption of independence of observations and is especially well-suited to accounting for the autocorrelation in dyadic data (Krackhardt, 1988). It has been often used with dyadic data in strategic management research (Chen *et al*, 2007; Tsai, Su and Chen, 2011). I log transformed Awareness and Motivation because they were skewed.

Table 1 presents descriptive statistics and correlations. I used QAP correlations in determining significance levels.

Table 1: Descriptive statistics and correlations - main study

Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9	10
1. Motivation	0.19	0.52										
2. Awareness	0.53	0.76	0.50*									
3. Similar type of food	0.07	0.26	0.19*	0.01								
4. Differences in FB rating	0	0.23	-0.01	-0.01	0.00							
5. Price differences	0	2.84	0.07	-0.18	0.00	-0.17						
6. Collaboration	0.18	0.39	-0.06	0.06	-0.13	0.02	-0.07					
7. Relative status of rival	0	0.77	0.26*	0.46*	0.00	-0.19	-0.11	-0.18*				
8. Market commonality1	0.02	0.03	-0.01	0.17*	-0.12	0.12	-0.18*	0.08	0.07			
9. Market commonality2	0.02	0.03	0.00	0.18*	-0.12*	0.13	-0.18*	0.08	0.08	0.99*		
10. Market commonality3	0.02	0.03	-0.06	0.14*	-0.08	0.13	-0.16*	0.02	0.09	0.83*	0.85*	
11. Absolute value of status differences	0.64	0.43	-0.02	0.05	0.02	0.00	0.00	-0.03	0.00	0.07	0.07	0.03

* - $p < 0.05$ per QAP correlations; 5,000 permutations

Tables 2 through 4 present tests of hypotheses that predict awareness and use market commonality 1, 2, and 3 respectively. Market commonality 1 treats each location

as a market. Market commonality 2 distinguishes Thursday, Friday and Saturday evenings from others at the breweries. Market commonality 3 treats each location-day-of-week pair as a market (e.g. Mondays at UK Healthcare and Fridays at Blue Stallion Brewing).

Table 2: QAP models predicting log of awareness – mkt commonality 1

Variables	(1)	(2)	(3)	(4)
Similar type of food	0.051	0.099	0.121	0.122
Differences in FB rating	-0.150	-0.198	0.153	0.179
Price differences	-0.050	-0.043	-0.025	-0.022
Collaboration	0.105	0.089	0.271*	0.280**
Market commonality1		3.293*	2.388*	2.045*
Rival's relative status			0.465**	0.394**
Relative status X Market commonality1				3.261*
Adjusted R-square	0.024	0.042	0.246	0.257

*** $p < 0.01$, * $p < 0.05$, + $p < 0.10$. Two-tailed tests for all variables. 2,000 permutations.*

Table 3: QAP models predicting log of awareness - mkt commonality 2

Variables	(1)	(2)	(3)	(4)
Similar type of food	0.051	0.104	0.124	0.124
Differences in FB rating	-0.150	-0.201	0.149	0.176
Price differences	-0.050	-0.043	-0.024	-0.022
Collaboration	0.105	0.088	0.269*	0.278**
Market commonality2		3.571*	2.594*	2.202*
Rival's relative status			0.464**	0.395**
Relative status X Market commonality2				3.197*
Adjusted R-square	0.024	0.045	0.247	0.258

*** $p < 0.01$, * $p < 0.05$, + $p < 0.10$. Two-tailed tests for all variables. 2,000 permutations.*

Table 4: QAP models predicting log of awareness – mkt commonality 3

Variables	(1)	(2)	(3)	(4)
Similar type of food	0.051	0.077	0.102	0.099
Differences in FB rating	-0.150	-0.192	0.164	0.203
Price differences	-0.050	-0.045	-0.026	-0.024
Collaboration	0.105	0.105	0.283**	0.287**
Market commonality3		3.508+	2.112	1.424
Rival's relative status			0.468**	0.423**
Relative status X Market commonality3				3.138+
Adjusted R-square	0.024	0.034	0.239	0.242

** $p < 0.01$, * $p < 0.05$, + $p < 0.10$. Two-tailed tests for all variables. 2,000 permutations.

Model 1 in table 2 consists of just the control variables. Model 2 tests hypothesis 1. Hypothesis 1 predicted a positive relationship between a rival's market commonality with a focal food truck and the focal food truck's awareness of the rival. This hypothesis is supported, with an unstandardized co-efficient of 3.293 for market commonality ($p < 0.05$). However, despite the co-efficient being positive and the hypothesis receiving support, I note that the adjusted R-square of the model is just 0.042 suggesting low explanatory power for all control variables and market commonality combined.

Model 3 in table 2 tests hypothesis 3, which predicted a positive relationship between a rival's relative status and a focal food truck's awareness of the rival. This hypothesis receives very strong support. The unstandardized co-efficient for rival's relative status is 0.465 ($p < 0.01$). Perhaps noteworthy is that the adjusted R-square jumps to 0.246. The difference in adjusted R-square between models 2 and 3 indicates that, at least, in this context, a rival's relative status is a much stronger predictor of awareness than market commonality. I explored this phenomenon further in the semi-structured interviews that followed the quantitative analyses.

Model 4 in table 2 tests hypothesis 6, which predicted a positive interaction between rival's relative status and market commonality on a focal firm's awareness of the rival. Hypothesis 6 is supported, and the adjusted R-square jumps to 0.257. The un-standardized co-efficient for the interaction term is 3.261 ($p < 0.05$). Figure 4 depicts the interaction plot.

Figure 4: Interaction of relative status of rival and market commonality predicting awareness

Table 3 attempts to replicate the results with market commonality 2 and table 4 with market commonality 3 and all hypotheses generally continue to be supported. With market commonality 3 (which treats each location-day-of-week pair as a market), hypothesis 6, which predicted an interaction between rival's relative status and market commonality on awareness, is only marginally supported. The un-standardized co-efficient for the interaction is 3.138 ($p < 0.10$). I note, however, that the overall results are largely robust to different specifications of market commonality.

Tables 5 through 7 present tests of hypotheses that predict motivation and use market commonality 1, 2, and 3 respectively.

Table 5: QAP models predicting log of motivation – mkt commonality 1

Variables	(1)	(2)	(3)	(4)	(5)
Log of awareness	0.368**	0.373**	0.374**	0.362**	0.372**
Similar type of food	0.345*	0.333*	0.335*	0.335*	0.334*
Differences in FB rating	0.051	0.063	0.062	0.078	0.064
Price differences	0.031*	0.030*	0.030*	0.030*	0.029*
Collaboration	-0.076	-0.072	-0.075	-0.063	-0.069
Market commonality1		-0.780	-0.737	-0.790	-0.645
Absolute value of difference in status			-0.053		
Relative status of rival				0.023	0.053
Relative status X Market commonality1					-1.59*
Adjusted R-square	0.305	0.305	0.304	0.303	0.308

** $p < 0.01$, * $p < 0.05$, + $p < 0.10$. Two-tailed tests for all variables. 2,000 permutations.

Table 6: QAP models predicting log of motivation – mkt commonality 2

Variables	(1)	(2)	(3)	(4)	(5)
Log of awareness	0.368**	0.373**	0.374**	0.362**	0.371**
Similar type of food	0.345*	0.334*	0.336*	0.336*	0.335*
Differences in FB rating	0.051	0.062	0.061	0.077	0.062
Price differences	0.031*	0.030*	0.030*	0.031*	0.030*
Collaboration	-0.076	-0.073	-0.075	-0.063	-0.070
Market commonality2		-0.718	-0.667	-0.729	-0.548
Absolute value of difference in status			-0.053		
Relative status of rival				0.023	0.051
Relative status X Market commonality2					-1.512+
Adjusted R-square	0.305	0.305	0.304	0.303	0.306

** $p < 0.01$, * $p < 0.05$, + $p < 0.10$. Two-tailed tests for all variables. 2,000 permutations.

Table 7: QAP models predicting log of motivation – mkt commonality 3

Variables	(1)	(2)	(3)	(4)	(5)
Log of awareness	0.368**	0.376**	0.377**	0.364**	0.371**
Similar type of food	0.345*	0.329*	0.330*	0.331*	0.332**
Differences in FB rating	0.051	0.077	0.077	0.095	0.058
Price differences	0.031*	0.029*	0.029*	0.029*	0.027*
Collaboration	-0.076	-0.076	-0.078	-0.065	-0.071
Market commonality3		-2.120*	-2.094*	-2.156*	-1.542+
Absolute value of difference in status			-0.053		
Relative status of rival				0.027	0.064
Relative status X Market commonality3					-2.872*
Adjusted R-square	0.305	0.313	0.312	0.311	0.319

** $p < 0.01$, * $p < 0.05$, + $p < 0.10$. Two-tailed tests for all variables. 2,000 permutations.

Model 1 in table 5 consists of only the control variables. Food trucks seem to have greater motivation to launch action with other food trucks that serve similar types of food. The un-standardized co-efficient for serving a similar type of food is 0.345 ($p < 0.05$). Interestingly, food trucks seem to be more motivated to compete with other food trucks that serve food at lower price points. With price differences defined as the focal food truck's typical price for a meal *minus* the rival's typical price for a meal, the un-standardized co-efficient for price differences is 0.031 ($p < 0.05$). I explored this phenomenon further in the semi-structured interviews that followed the quantitative analysis. The adjusted R-square for the model with control variables is 0.305, suggesting strong explanatory power.

Model 2 in table 5 tests hypothesis 2, which predicted that a rival's market commonality with a focal food truck has a negative relationship with the focal food truck's motivation to launch action against the rival. Hypothesis 2 does not receive support. Although the direction is as envisaged, with an unstandardized co-efficient of -0.780, the effect is not statistically significant even at a $p < 0.10$. The adjusted R-square is 0.305, the same as for the controls-only model.

Hypothesis 4a predicted that the absolute value of differences in status between a focal firm and rival would be negatively related to the focal firm's motivation to launch action against the rival. Model 3 in table 5 tests hypothesis 4a. While the direction of the co-efficient for the absolute value of difference in status is as predicted (unstandardized co-efficient of -0.053), the hypothesis is not supported even at $p < 0.10$. The adjusted R-square stays approximately the same at 0.304.

Hypothesis 4b predicted that the status of a rival relative to a focal firm would bear a positive association with a focal firm's motivation to launch action against the rival. Model 4 in table 5 tests this hypothesis, which again does not receive support even at a $p < 0.10$ although the co-efficient is along the predicted direction. The unstandardized co-efficient for the relative status of a rival is 0.023, in the anticipated direction but not significant. The adjusted R-square is 0.303.

Model 5 in table 5 tests hypothesis 5, which receives support ($p < 0.05$). While the main effects of rival's relative status and market commonality do not receive support, the interaction of rival's relative status and market commonality is in the direction envisaged and significant at $p < 0.05$, perhaps suggestive of the importance of considering the two variables in tandem with each other. There is a small rise in the

adjusted R-square to 0.308. The unstandardized co-efficient for the interaction term is -1.59. Figure 5 depicts the interaction plot.

Figure 5: Interaction of relative status of rival and market commonality predicting motivation

Tables 6 and 7 attempt to replicate the results with the other measures of market commonality. The results are largely consistent with hypothesis 5 receiving some support ($p < 0.10$) with market commonality 2, which distinguishes the Thursday, Friday and Saturday evening slots from the others at the breweries, and full support ($p < 0.05$) with market commonality 3, which considers each location-day-of-week pair as a market.

Interestingly, model 2 in table 7 indicates that the main effect of market commonality on motivation to launch action is negative and significant when market commonality is defined in terms of a location-day of week pair. The unstandardized co-efficient is -2.120 ($p < 0.05$) so hypothesis 2 does receive support in this model.

Assessing the findings and alternative explanations

Both market commonality and the relative status of a rival predict awareness of rivals, with rival's relative status appearing to matter substantially more than market commonality. While the main effects of rival's relative status and market commonality on motivation are not significant (with the exception of the model that operationalizes market commonality considering both location and day-of-week), the interaction is significant and in the predicted direction, pointing to the importance of considering market commonality when attempting to predict how a rival's relative status influences motivation to launch action and to the importance of considering rival's relative status when attempting to predict how market commonality influences motivation to launch action. In addition, the fact that hypothesis 6 is supported lends credence to the theorizing leading to hypothesis 5 – that firms are likely to perceive high-status rivals that have a significant presence in their markets as a threat.

A strength of the findings is that they help to rule out alternative explanations. While status in general is often correlated with several measures of success, as for example, revenue and profitability, the fact that such data is not publicly available for food trucks helps to rule out the possibility that the effect is not because of status but differences among those dimensions. While Facebook review ratings are publicly available, I explicitly control for them in the analyses (and in fact differences in FB ratings are not strongly correlated with differences in status). The fact that the effect for the interaction term remains significant when controlling for possible collaboration helps to rule out the possibility that forbearance is because of fear of losing such support. In addition, the fact that the results are generally supported under different measures of

market commonality serves as an important robustness check. While the greater motivation to launch action against food trucks that serve similar types of food was expected, it is interesting that food trucks are more motivated to compete with rivals at lower price points, a phenomenon that I explored further in the semi-structured interviews that followed the quantitative analyses.

Second round of semi-structured interviews

I conducted a second round of semi-structured interviews with five food truck owners – Toyota, Chrysler, Ferrari, Porsche and Mercedes (pseudonyms). All five had responded to the survey. In referring to food trucks in my description of the semi-structured interviews, I use pseudonyms in appendices 1 and 2 to preserve confidentiality. The reasons for conducting these interviews were manifold. First, given that I had single-item scales for measures like awareness and motivation, I wanted to confirm that respondents approached the questions as I envisioned. Second, I was interested in understanding exactly how they approached concepts like status, awareness and motivation. Third, I sought to confirm that the reason I was seeing the results was because of the specific theoretical mechanisms I envisioned. Fourth, I sought to further probe the interesting finding of food trucks being more motivated to launch action against rivals that served food at lower price-points. Finally, I anticipated that the interviews would lead to new and interesting questions for future research. I took notes and transcribed all interviews.

While my script was tailored to survey responses from the specific food trucks that I interviewed, I had questions asking how they approached the status, awareness and motivation questions, and sought to understand the reasons for their responses.

Transcripts for all relevant questions and answers are in appendices 3 through 7 (I also engaged in informal conversation with each of the food truck owners that I interviewed but have excluded informal conversation from the transcripts presented in the appendices). Below I organize and describe key takeaways from the interviews.

I was interested in understanding how they approached the question on status. Interestingly, it turns out that food trucks perceive quality among themselves very differently from laypeople. One of them said “If the [*other*] food truck also runs a restaurant, I make it a point to visit the restroom at that restaurant. With my experience, how clean the rest room is says a lot about their quality.” Another pointed to the quality of food and whether he knew and liked the owner. One said he rated as high in status those food trucks that “I would eat from. I respect their quality and food and [*in some cases*] they happen to be my friends.” Other answers were “based on FB ratings and observing how popular the food truck is” and “quality as I see it.” Despite these views appearing divergent, it turns out that food trucks were in remarkable agreement on ratings of the statuses of other food trucks, with a Cronbach’s Alpha of 0.833.

Past research has emphasized that status hierarchies are inter-subjectively agreed upon and stable (Magee and Galinsky; Washington and Zajac, 2005; Weber, 1978) and indeed that view received support in my study. However, individuals may hold slightly different views of the hierarchy, as suggested by the comments from food truck owners above. A key question in this context is what the consequences are for decision-makers within firms when their perceptions of the hierarchy differ from the consensus. If the consequences turn out to be important, it may also be interesting to probe the antecedents to holding views of the status hierarchy that are divergent from the consensus,

ascertaining specifically whether these slightly varying views are idiosyncratic or there are systematic biases based on characteristics of the firm or decision-maker. Future research should delve deeper into this phenomenon.

I was also interested in understanding whether awareness was calculated and the outcome of a competitive logic or not and how important different factors were in predicting awareness. It seemed that in this context, there was the presence of both conscious and sub-conscious drivers of awareness. One food truck owner said, “there needs to be something that stands out in another food truck for me to take notice...either they look very good or the food is really great or there’s something else that would make me notice them.” Another said “I watch Ford [Ford was generally highly rated on status by most food trucks] because they set the trend...they are popular...I watch where they are and what they do. I watch Suzuki and Porsche [food trucks that served food that was similar in type to the one owned by the interviewee] to make sure I am doing different things from those. I believe that developing a niche is better than cut-throat competition.” The owner of one food truck (he and a close friend jointly ran the food truck) said (as expected they had generally indicated being aware of higher-status food trucks), “we observe Jeep and Kia because their business models are similar...they are similar to us so we observe their menus and prices...we observe Mercedes because it is such a good looking food truck and has long queues...we notice when there are long queues and a food truck is popular.” The importance of rival’s relative status over market commonality in predicting awareness was underscored by one food truck owner who, when asked why she didn’t indicate being aware of another food truck that was often at the locations she was at (although not at the same time), replied “They are sub-standard!”

Past research has highlighted that several heuristics determine which stimuli pass the perceptual filters of decision-makers including status (Anderson *et al*, 2001; and Kovacs and Sharkey, 2014), market commonality (Chen, 1996), and aspiration-level triggers (Cyert and March, 1963). At the same time, past research has indicated that certain heuristics are also learned from experience (Bingham and Eisenhardt, 2011). Finally, it is plausible that organizational decision-makers also use calculated logics to determine what signals in the environment to pay attention to. Interviews with the food truck owners revealed the presence of all three. It would be both interesting and important to investigate the relative effectiveness of these different mechanisms for firms, and their consequences for decision-making and performance.

Interestingly, when probing how price-points affected motivation to launch action, some food truck owners indicated that they felt that the food trucks charging lower prices were inferior in quality and trying to undercut the higher quality food trucks on price, providing some explanation for the results that suggested greater motivation to beat rivals at lower price-points. At the same time [*a contradiction*], they said that food trucks chalk out different territories as far as locations and consumers are concerned and that “someone who goes there at an event where we are all there would not be thinking of coming to my food truck...” One food truck owner, who was not among the higher-status ones in average ranking, however, suggested the opposite. He said he felt his fare was just as good as those of Ford [*which was ranked very high on status*] but that they charged more because they were higher in status.

Scholars have highlighted that possessing high-status allows firms to charge a price premium, both because of the signaling value of status when market participants are

confronted with uncertainty and because status may be something valued (Podolny, 1993; Sorenson, 2014). However, the privilege of being able to charge higher prices is accompanied by an interesting downside. High-status producers are often compelled to charge higher prices and cannot lower prices as doing so and associating with lower-status producers may result in a dilution of exclusivity and high-status (Podolny, 1993; Washington and Zajac, 2005). It stands to reason then, that status may also be a trap under some circumstances as high-status producers may be deprived of some of the opportunities that lower-status producers have access to.

About motivation to launch action, there was a clear boost in motivation that they perceived from beating a higher-status rival. Specifically, about the highest ranked food truck in status, one owner said, “I feel I can give them a run for their money” and another referred to them as “gold-standard” (the same word was used by another owner too about the highest ranked food truck) and referred to beating them as “aiming for the top.” Food truck owners also confirmed the importance of food type. One said, “I am motivated to beat Renault [*which served a similar type of food*] because I feel I can do better than them.” They said even among trucks serving the same type of food, not all are competitors, e.g. “we see Jeep and Kia as competitors because they have similar business models” pointing to the presence of cognitive categories (Porac and Thomas, 1990; Reger and Huff, 1993). Interestingly, about forbearance based on market contact, when showed several food trucks that had high market commonality with one another, one food truck owner remarked “Oh...yeah...they are all in the same group and know each other.” Despite these comments, the main effects of rival’s relative status and market commonality were not significant in the quantitative analyses.

The boost in motivation from beating a higher-status rival was consistent with other studies (e.g. Kilduff *et al*, 2010). A key difference between an empirical context like NCAA basketball (as used in Kilduff *et al*, 2010) and this study is that, with NCAA basketball, teams of different statuses are often scheduled to play against each other. In the context of firms, however, decision-makers have much greater agency and choice and can decide whether they even want to enter a contest against a firm at a different level within the status hierarchy. Among the key contributions of this dissertation is that it suggests exactly when the boost in motivation from beating a higher-status rival would translate into actual competitive action against a high-status firm.

I tried to elicit food truck owners' reactions to some rivals in the different zones in Figure 2. Rivals in zone 4 (high-status, low market commonality) elicited reactions like "I feel I can give them a run for their money" while rivals in zone 3 (high-status, high market commonality) elicited reactions like "I know them. They are my friends and I respect them." Rivals in zone 2 (low-status, high market commonality), some of which were new food trucks that had made inroads into the markets of the higher-status food trucks, elicited negative reactions from the older and higher-status food trucks, some of whom seemed skeptical.

In sum, the second round of semi-structured interviews served to validate the findings. Respondents seemed to approach the awareness and motivation questions as I originally envisioned. The theoretical mechanism too received some validation. Finally, as noted above, the interviews opened the possibility of several new avenues for future research to probe more deeply.

A key benefit from the ethnographic sandwich was the two layers of semi-structured interviews. While the first layer helped design a valid quantitative field study, important given that this is a relatively new empirical context in strategy and management research, the second layer helped with internal validity by eliciting respondents' comments on the results from the field study. Importantly, the second layer of semi-structured interviews also helped probe related questions and elicit explanations for several interesting results, laying a foundation for future research. The combination of quantitative analyses and qualitative interviews collectively helped enhance rigor.

Consequences and supplementary analyses

The theorizing and results above lead to important and interesting consequences for firms in real-world situations that is best illustrated with an example from the real world. In the 1960s and 1970s, the Detroit automakers were considered higher-status than the Japanese ones. My theory would predict that Ford focused most of its attention on General Motors (which was a high-status rival that had a major presence in the American markets that were important to Ford – in zone 3 of Figure 2) while refraining from launching a major offensive against GM (i.e., high awareness but low intent to launch competitive action, characteristic of zone 3). My theory would also predict that Ford focused probably little to no attention on Toyota as Toyota would have been in zone 1 with respect to Ford (low-status, low market commonality). Interestingly, for Toyota, Ford was a higher-status rival with low market commonality, i.e., zone 4 of Figure 2 (Toyota did not have as much of a presence in US markets then unlike today). Based on the theory above, Toyota's competitive focus must have been on GM and Ford, while Ford's focus was probably on GM (high awareness, low motivation). It is perhaps not

surprising that Toyota launched several major competitive moves to penetrate the US market and win market share over GM and Ford, which it did. Consistent with past research in competitive dynamics that has emphasized the importance of competitive action against a rival on market share gain (Chen and Miller, 2012; Smith *et al* 2001), Toyota won market share over GM and Ford. My theory would predict that Ford and GM woke up and began paying attention to Toyota *after* it penetrated their key markets, i.e. by which time Toyota moved from zone 1 to zone 2 in the eyes of Ford and GM. A key theoretical underpinning is the asymmetry in awareness and motivation, which I investigate further below. Three key takeaways from the consequences of my theory and results are that (1) higher-status firms are likelier to come under attack from rivals with whom they do not compete much in markets (2) they are unlikely to be aware of or motivated to attack those rivals and (3) they are likely to become aware of and motivated to attack those rivals *after* the rivals have penetrated key markets. My theory and results thus point to higher-status firms having more to fear from lower-status firms with which they do not compete in markets as opposed to from lower-status firms on whose turf they are significant players. The lower-status firms that are outside of the higher-status firms' key markets simply feel less pressure to forbear from competitive attack.

As a side observation, Toyota's status too changed over time and today it is perhaps often perceived as higher-status than Ford and GM. However, based on past research on status (Magee and Galinsky, 2008; Merton, 1968), it is perhaps reasonable to assume that status changes, even when they do occur, unfold over much longer time frames than changes in market commonality, given the inertia within status hierarchies. It is perhaps reasonable to assume that when Ford and GM woke up and began paying

attention to and became motivated to beat Toyota (which was perhaps towards the end of the 1970s), Toyota was still in zone 2 (low-status, high market commonality). Summing up, it is plausible that the different zones in Figure 2 represent temporally distinct phases of competitive engagement at the level of the firm-rival dyad.

I conducted further analyses exploring the asymmetry in awareness and motivation. Specifically, I ran analyses with UCINET VI (Borgatti, Everett and Freeman, 2002) that measured dyad-level reciprocity. Dyad-level reciprocity is the proportion of ties that are reciprocated. A very interesting finding was that, while dyad-level reciprocity was low in the Awareness matrix (approximately 0.08), it was zero in the Motivation matrix, implying that in not even one instance where food truck A indicated being motivated to compete with food truck B, did food truck B indicate being motivated to compete with food truck A.

Supplementary Study – Experiment through Amazon’s Mechanical Turk Tool

I designed an experiment to test the theoretical mechanism leading to Hypothesis 5, given its pivotal role. Central to the theory leading to hypothesis 5 was the argument that specific combinations of a rival’s relative status and market commonality with a focal firm would lead the focal firm to perceive the situation with respect to that rival as an opportunity or threat (Dutton and Jackson, 1987; Jackson and Dutton, 1988) and that that in turn would predict motivation to launch action. I sought to conduct an experiment to validate this theoretical mechanism.

Although hypothesis 5 was supported in the field study, I sought to more thoroughly test the role of the perception of specific situations as opportunities or threats

as mediating the relationship between specific combinations of market commonality and rival's relative status and motivation to launch action. I sought to achieve this objective by recruiting subjects and rolling out an experiment that presented them with vignettes corresponding to the four zones in Figure 2 and eliciting their views on how they perceived the situations they were presented with.

Many past competitive dynamics studies have theorized certain antecedents as impacting the propensity for action or response (e.g. Chen *et al*, 1992; Chen *et al*, 2007). However, when testing theory, these studies have fallen short of verifying the mechanism leading up to the results. For example, Chen *et al* (2007) theorized that a rival's relative scale was likely to lead to greater perceived competitive tension *through* its impact on the focal firm's *awareness* of the rival. However, the mediating mechanism was not explicitly tested. In my dissertation, I sought to improve upon past research by explicitly testing causal mechanisms and hence ran an experiment through Amazon's Mechanical Turk tool.

In my theorizing, I held that specific combinations of market commonality and relative status would lead a focal firm to perceive the situation with respect to a rival as an opportunity or threat. I sought to explicitly test this mechanism on subjects presented with vignettes that varied market commonality and status of a hypothetical rival. My objective was to validate that the specific combinations of market commonality and rival's relative status in Figure 2 would lead to the perception of a given situation with respect to a rival as an opportunity (threat) and that that in turn would lead to a greater (lower) propensity to launch competitive action against a rival. Parallel to the logic of hypothesis 5, I expected to find a negative interaction between a rival's relative status and

the rival's market commonality when predicting motivation to launch action. However, rather than treat the perception of the situation as an opportunity of threat (Dutton and Jackson, 1987; Jackson and Dutton, 1988) as black box, I sought to explicitly measure it and test its role as a mediator. Specifically, I sought to validate the mediated moderation model (Muller, Judd and Yzerbyt, 2005) depicted below.

Figure 6: Mediated moderation

In the experiment, each subject was presented with a vignette asking him/her to imagine him/herself as a Bourbon maker in Kentucky. I then asked the subject to picture a rival Bourbon maker. The two variables that I manipulated were the status of the rival and the rival's presence in markets supposed to be important to the subject resulting in four possible scenarios. In addition, I set up each scenario to reflect benefits and costs as expected from previous research in status and competitive dynamics. I then asked an attention check question. That was followed by questions on the extent to which they perceived the situation to be positive, the extent to which they felt in control and how likely they would launch a competitive move in that situation. In addition, I provided subjects with an open-ended text box asking them to indicate why they picked the options that they did and gathered demographic characteristics.

Subject recruitment and rollout

I recruited 120 subjects through Amazon's Mechanical Turk tool. Amazon's Mechanical Turk is a crowdsourcing tool that allows researchers to distribute surveys to

large numbers of workers, who are paid to complete the survey, over the Internet (Chandler and Shapiro, 2016). It allows for quick subject recruitment and rollout. Much past research on status in the context of firms has relied upon archival data (e.g. Benjamin and Podolny, 1999; Chung *et al*, 2000; Podolny, 1993). While these studies have laid out several theoretical mechanisms linking status to important organizational outcomes, what has been missing is a clear validation of those mechanisms. Some recent research in status (e.g. Hahl and Zuckerman, 2014) has attempted to move along this direction by using Amazon's Mechanical Turk to test underlying psychological mechanisms that result from either possessing or observing someone else who possesses status.

Subjects were promised payment of 75 cents upon completion of a task that would present them with a business scenario and asked how they would respond to that scenario. The title of the task was "If you were a Bourbon maker in Kentucky..." To ensure uniformity and given that people outside the US may not know what "Bourbon" and "Kentucky" mean, I restricted subjects to those who had voted in the 2016 US Presidential election. I assigned the vignettes corresponding to the four possible combinations of rival's status and market commonality at random. I used the randomization tool in Qualtrics, which helped me design the survey, and selected "Evenly present elements" in Qualtrics' randomization setup so that I would get approximately 30 responses to each of the four scenarios.

Design Description

I first had a set of questions in which I asked subjects their age, gender as they perceived it, race and occupational status. I then presented them with a vignette asking

them to imagine themselves as a Bourbon maker in Kentucky and asking them to picture a rival Bourbon maker. I manipulated the rival's status and market commonality and presented subjects with the benefits and costs of attack based upon prior research in status and competitive dynamics. Below are the actual vignettes I used in the four different scenarios. Status and market commonality refer to that of the rival.

High-status, low market commonality:

Picture yourself as a Bourbon maker in the beautiful Bluegrass region of Kentucky. Elite Bourbon is another Bourbon maker in the Bluegrass. Elite Bourbon is, however, considered to be a higher-status Bourbon maker than you, meaning that Elite Bourbon's products are generally perceived to be of higher quality than yours. Your markets don't overlap much. Elite Bourbon sells Bourbon through upmarket stores all over the world while you sell your Bourbon through regular stores that attract middle-class consumers. You are wondering whether you should make a competitive move to enter Elite Bourbon's markets. A competitive move in this context refers to an action like a new product introduction, a change in price or an advertising campaign. As far as retaliation goes, Elite Bourbon may retaliate against you in its markets. However, it is unlikely to retaliate by attempting to enter the middle-class markets that account for most of your revenues as it would mean a dilution of its brand image.

High-status, high market commonality:

Picture yourself as a Bourbon maker in the beautiful Bluegrass region of Kentucky. Elite Bourbon is another Bourbon maker in the Bluegrass. Elite Bourbon is, however, considered to be a higher-status Bourbon maker than you, meaning that Elite Bourbon's

products are generally perceived to be of higher quality than yours. However, Elite Bourbon does have a significant presence in your markets. Although Elite Bourbon's primary channels are upmarket stores, their products often also appear in the same middle-class stores that stock your products and sometimes your consumers also purchase Elite Bourbon's products. You are wondering whether you should make a competitive move to gain market share with respect to Elite Bourbon. A competitive move in this context refers to an action like a new product introduction, a change in price or an advertising campaign. However, Elite Bourbon may retaliate and because Elite Bourbon is higher-status than you and has a significant presence in your markets, retaliatory competitive moves from Elite Bourbon may hurt your business.

Low-status, low market commonality:

Picture yourself as a Bourbon maker in the beautiful Bluegrass region of Kentucky. Masses Bourbon is another Bourbon maker in the Bluegrass. Masses Bourbon is, however, considered to be a lower-status Bourbon maker than you, meaning that Masses Bourbon's products are generally perceived to be of lower quality than yours. Your markets don't overlap much. Masses Bourbon sells Bourbon through stores that attract middle-class consumers while you sell your Bourbon through upmarket stores all over the world. You are wondering whether you should make a competitive move to enter Masses Bourbon's markets. A competitive move in this context refers to an action like a new product introduction, a change in price or an advertising campaign. Your upmarket consumers may perceive a dilution in your quality if you are seen competing with or attempting to enter Masses Bourbon's markets. As far as retaliation from Masses

Bourbon is concerned, though, you have an advantage in the event of a war given your higher-status.

Low-status, high market commonality:

Picture yourself as a Bourbon maker in the beautiful Bluegrass region of Kentucky.

Masses Bourbon is another Bourbon maker in the Bluegrass. Masses Bourbon is, however, considered to be a lower-status Bourbon maker than you, meaning that Masses Bourbon's products are generally perceived to be of lower quality than yours. However, Masses Bourbon does have a significant presence in your markets. Although Masses Bourbon's primary channels are middle-class stores, their products often also appear in the upmarket stores that stock your products and sometimes your consumers also purchase Masses Bourbon's products. You are wondering whether you should make a competitive move to gain market share with respect to Masses Bourbon. A competitive move in this context refers to an action like a new product introduction, a change in price or an advertising campaign. Although Masses Bourbon may retaliate, your higher-status endows you with an advantage in the event of a war.

Following the vignette, I had an attention check question asking whether the rival's status was lower or higher than the subject's. That was followed by three questions. I asked "To what extent do you perceive potential gains (or losses) by launching the competitive move against Masses Bourbon?" That was followed by a seven-point scale with labels – "bad losses," "significant losses," "some losses," "neither gains nor losses," "some gains," "significant gains," and "great gains." I then asked "To what extent do you anticipate being in control if you went ahead with launching the competitive move against Masses Bourbon?" That was followed by a five-point scale

with labels – “really not in control, not in control, not really in control, somewhat in control, fully in control.” That in turn was followed by the question “How likely is it that you will go ahead and launch the competitive move against Masses Bourbon?” and a seven-point scale with labels – “extremely unlikely,” “moderately unlikely,” “slightly unlikely,” “neither likely nor unlikely,” “slightly likely,” “moderately likely,” and “extremely likely.” Finally, I had an open-ended multi-line text box “Please give us your comments on why you selected the options you did.”

Data and Measures

I measured the dependent variable, which was the likelihood of launching competitive action, based on the option selected, with extremely unlikely coded as 1 and extremely likely coded as 7. To measure the extent to which the subject perceived the situation as one involving gains (losses), I converted the response to a number by coding “bad losses” as 1 and “great gains” as 7 with the options between the extremes progressively coded as 2 through 5. To measure the extent to which the subject perceived being in control, I converted the response on the question to a number with “really not in control” coded as 1 and “fully in control” coded as 5. To measure the mediator, which was the extent to which the subject perceived the situation as an opportunity or a threat, I summed the standard scores of the responses to the questions on the extent to which they perceived the situation as one involving gains (losses) and the extent to which they felt in control. I created this basic measure to represent the extent to which they perceived a situation as an opportunity (potential gains and in control) or threat (potential losses and not in control), consistent with the theory in social cognition that I articulated earlier (Dutton and Jackson, 1987). Finally, in the vignettes in which the rival was higher in

status, I coded the rival's status as 1 and in the ones where the rival was lower in status, I coded the rival's status as -1. In the vignettes in which the rival had high market commonality, I coded market commonality as 1 and in the ones where the rival had low market commonality, I coded market commonality as -1.

Analyses and Results

I dropped two cases that failed the attention check. The final sample consisted of 119 cases. Thirty-one cases corresponded to a high-status low market commonality rival, 31 to high-status high market commonality, 29 to low-status low market commonality and 28 to low-status high market commonality. Of course, all models needed controls for main effects and demographic variables (given the between-subjects design). I controlled for age and gender and included dummy variables for race and occupational status. I use ordinary least squares regression and robust standard errors in all models. Table 8 presents descriptive statistics and correlations.

Table 8: Descriptive statistics and correlations – supplementary study

Variables	Mean	S.D.	1	2	3	4	5
1. Age	40.82	11.32					
2. Gender	0.52	0.50	-0.21*				
3. Relative status of rival	0.03	1.00	-0.07	-0.02			
4. Market commonality	-0.02	1.00	0.21*	-0.03	0.00		
5. Perception of opportunity (threat)	1.45	0.47	0.06	-0.01	-0.30*	0.02	
6. Likelihood of action	0.44	1.80	0.07	-0.03	-0.13	0.13	0.63*

* - $p < 0.05$

Tables 9 and 10 present results for the test of mediated moderation. A test of mediated moderation consists of three steps (Muller, Judd and Yzerbyt, 2005)– (1) establishing that the interaction predicts the outcome, (2) establishing that the interaction

predicts the mediator, and (3) establishing that the interaction loses significance in a model with both the interaction and the mediator. Hence, I was interested in (1) whether the interaction of rival's relative status and market commonality predicted the likelihood of launching action, (2) whether the interaction of rival's relative status and market commonality predicted the extent to which the individual perceived the situation as an opportunity (threat), and (3) whether the interaction of relative status and market commonality lost significance when placed alongside the extent to which the individual perceived the situation as an opportunity (threat) in a model that predicted the likelihood that the individual would launch action.

Tables 9 and 10 helped me perform the above tests. The outcome for all models in table 9 is likelihood of action while the outcome for the models in table 10 is the perception of opportunity (threat).

Table 9: OLS models predicting likelihood of action

Variables	(1)	(2)	(3)	(4)	(5)
Age	0.011 (0.016)	0.010 (0.016)	0.006 (0.016)	0.006 (0.015)	0.004 (0.011)
Gender	-0.158 (0.352)	-0.178 (0.353)	-0.152 (0.349)	-0.082 (0.338)	0.004 (0.270)
Status of rival		-0.123 (0.176)	-0.122 (0.174)	-0.123 (0.168)	0.236+ (0.128)
Market commonality			0.217 (0.173)	0.222 (0.165)	0.187 (0.13)
Status of rival X market commonality				-0.488** (0.161)	-0.232+ (0.131)
Perception as opportunity (threat)					2.356** (0.270)
Race dummies	Yes	Yes	Yes	Yes	Yes
Occupational status dummies	Yes	Yes	Yes	Yes	Yes
R-square	0.109	0.114	0.126	0.196	0.505

*** $p < 0.01$, * $p < 0.05$, + $p < 0.10$. Two-tailed tests for all variables. Robust standard errors in parentheses.*

Table 10: OLS models predicting perception of opportunity (threat)

Variables	(1)	(2)	(3)	(4)
Age	0.002 (0.004)	0.001 (0.004)	0.000 (0.005)	0.000 (0.004)
Gender	-0.029 (0.097)	-0.054 (0.093)	-0.052 (0.095)	-0.037 (0.094)
Status of rival		-0.152** (0.048)	-0.152** (0.048)	-0.153** (0.047)
Market commonality			0.014 (0.050)	0.015 (0.048)
Status of rival X market commonality				-0.109* (0.043)
Race dummies	Yes	Yes	Yes	Yes
Occupational status dummies	Yes	Yes	Yes	Yes
R-square	0.057	0.150	0.150	0.200

** $p < 0.01$, * $p < 0.05$, + $p < 0.10$. Two-tailed tests for all variables. Robust standard errors in parentheses.

All three tests for mediated moderation mentioned above were validated. The first test was whether the interaction of rival's relative status and market commonality predicted likelihood of action. I tested this in model 4 of table 9. The unstandardized coefficient for the interaction of relative status of rival and market commonality is -0.488 and significant ($p < 0.01$) so the interaction does predict the outcome.

The second test was whether the interaction of relative status and market commonality predicted the extent to which the individual saw the situation as an opportunity (threat). I tested this in model 4 of table 10. The coefficient for the interaction of relative status of rival and market commonality is -0.109 and statistically significant ($p < 0.05$) so the interaction predicts the mediator.

Finally, model 5 of table 9 has both the mediator and the interaction term in a model that predicts the outcome, that is, the interaction of relative status and market commonality and the perception of the situation as an opportunity (threat) in a model predicting likelihood of action. The interaction term is no longer statistically significant

(at $p < 0.05$) when the mediator is present in the model. The three tests when taken together support mediated moderation.

Figures 7 and 8 are bar plots depicting how the perception of the situation as an opportunity or threat varies depending on the specific combination of relative status of rival and rival's market commonality with the focal firm. I note that the low-status rival low market commonality combination seems to elicit perceptions of the situation as more of an opportunity than a threat. However, a key distinction between the experiment and the field study is that the experiment does not account for awareness. Based on the theorizing and results from the field study it is unlikely that a firm would be paying significant attention to a rival in this zone. As already noted, even if a focal firm is aware of a rival in this zone, it is unlikely to be watching it closely or even to proceed with classifying the stimulus as a threat or opportunity. The experiment forces a response along those dimensions for all subjects. This may also be the reason that the direct effect of status in perceiving a situation as an opportunity or threat is negative and significant. Despite that, the mediated moderation model receives support. The bar plots for likelihood of action are along expected lines. There is no bar corresponding to the "Low status low market commonality" scenario as the likelihood of action is on average very close to zero in this case.

Figure 7: Bar plots for perception of opportunity (threat)

Figure 8: Bar plots for likelihood of action

DISCUSSION

Given the conflicting predictions on how a rival's relative status influences motivation to launch action, I set out to resolve the conflict by examining the role of structural properties of engagement in markets as a moderator. Two key predictions that emerged from my theoretical model were that the interaction between a rival's market commonality with a focal firm and the rival's status relative to the focal firm would bear a negative relationship with the focal firm's motivation to launch action against the rival and that the interaction between a rival's market commonality with a focal firm and the rival's status relative to the focal firm would bear a positive relationship with the focal firm's awareness of the rival. I set out to test predictions in the empirical context of food trucks in Lexington. Both hypotheses received support in the field study.

In addition, key to my theorizing was that specific combinations of a rival's market commonality and relative status would lead a focal firm to categorize the situation with respect to the rival as a threat or an opportunity and that that in turn would determine whether the focal firm would launch action against the rival or not. I tested this underlying psychological mechanism using an experiment through Amazon's Mechanical Turk tool. Results from the experiment supported the proposed mechanism.

Interestingly, the predicted main effects of a rival's relative status were along anticipated directions in the field study but not significant. However, the theory predicting that motivation to launch action and awareness of rivals are influenced by the negative and positive interactions of relative status and market commonality respectively received support. Results from the field study perhaps suggest the importance of a rival's

market commonality in predicting when a focal firm would launch action against a rival at the same or different position in the status hierarchy.

In the field study, the inclusion of control variables like differences in price points and Facebook review ratings and collaboration helped to rule out alternative explanations. In addition, the fact that food trucks do not vary greatly in size and that their profits are not publicly available helps to rule out that the effects are because of status differences being correlated with differences in revenues and profits.

Additional noteworthy observations from the field study are the very large impact of relative status of a rival on awareness and the asymmetry in the matrices of awareness and motivation. Side observations are that the motivation to compete is greater within food categories and that food trucks display more motivation to compete with rivals that sell their fare at lower price points.

Three important consequences of the theorizing and results are that (1) high-status firms are likely to come under attack from rivals with whom they do not compete in markets, (2) they are unlikely to be aware of or motivated to launch action against those rivals when first attacked, and that (3) they are likely to become aware of and motivated to launch action against those rivals after the rivals have occupied key markets. Below, I review and discuss the findings in greater detail.

Findings: Study 1

Market Commonality and Awareness

Hypothesis 1 predicted an upward sloping relationship between a rival's market commonality with a focal firm and the focal firm's awareness of a rival. This hypothesis

was supported. This prediction is consistent with past strategy research (e.g. Chen, 1996; Reger and Palmer, 1996) that has theorized or found that repeated engagement in markets increases awareness. More broadly, management research (e.g. Kilduff *et al*, 2010) has noted that repeated engagement makes a rival salient to a focal entity, whether at the level of the individual, group or firm so the finding is along expected lines and not particularly surprising.

Market Commonality and Motivation

Hypothesis 2 predicted that a rival's market commonality with a focal firm would be negatively related to the focal firm's motivation to launch action against the rival. In past research, market commonality has generally been found to have a dampening effect on rivalry (Baum and Korn, 1996, 1999; Gimeno and Woo, 1996; Yu *et al*, 2009). This hypothesis was supported in only one of my three operationalizations of market commonality (which defined a market in terms of a location-day-of-week pair).

Past research has generally tested this hypothesis on large firms that have had long histories of competition. It is plausible that forbearance emerged among those firms after periods of substantial head-to-head competition (Bernheim and Whinston, 1990). Yu and Cannella (2013) note this and make a call for research on out-of-equilibrium situations. An interesting and important difference between my sample and those of other studies (Baum and Korn, 199, 1999; Gimeno and Woo, 1996; Yu *et al*, 2009) is that there is much churn among food trucks in Lexington, with new food trucks entering the market and some older food trucks winding up to launch restaurants and catering businesses. It is likely that my sample consisted of both equilibrium and out-of-equilibrium dyads, which may have been the reason for the hypothesis not receiving overwhelming support.

The advantage, with my sample, however, is that I could study those out-of-equilibrium situations systematically. Specifically, I could theorize and test that, in the condition of high market commonality, a rival's relative status would determine whether a focal firm would forbear from launching action against the rival or not. My empirical setting thus helped me answer the call by Yu and Cannella (2013).

Relative Status of Rival and Awareness

Hypothesis 3 predicted an upward sloping relationship between the relative status of a rival and the focal firm's awareness of a rival. This prediction was based on past research that has found that higher-status actors garner more attention from other actors and that status is a heuristic in search (Anderson *et al*, 2001; Graffin *et al*, 2013; Kovacs and Sharkey, 2014). This hypothesis was very strongly supported. An interesting result was that the relative status of a rival seemed to be a much stronger predictor of a focal food truck's awareness of the rival than the rival's market commonality with the focal food truck.

Relative Status of Rival and Motivation

As noted when developing theory, research currently makes equivocal predictions on this relationship with one stream predicting that status hierarchies are relatively uncontested, stable and self-fulfilling (summarized in Magee and Galinsky, 2008) and another stream explicitly acknowledging and studying conflict within status hierarchies (Bendersky and Hays, 2012; Gould, 2003; He and Huang, 2011). I thus developed two conflicting hypotheses and tested both. The first hypothesis predicted that the status similarity between a focal firm and rival would be positively related to motivation to launch action (argument corresponding to the first stream). The second hypothesis

predicted an upward sloping relationship between the relative status of a rival with respect to a focal firm and the focal firm's motivation to launch action against the rival (argument corresponding to the second stream). Neither of these hypotheses received support perhaps highlighting the importance of unearthing contingencies when attempting to understand the role of status in the motivation to act against a rival.

Motivation and the Interaction of Relative Status and Market Commonality

Hypothesis 5 drew from theory within social cognition (Dutton and Jackson, 1987; Jackson and Dutton, 1988) to predict that the interaction of the rival's relative status and market commonality would have a negative relationship with a focal firm's motivation to launch action against a rival. Specifically, I highlighted that the motivation to launch action against a rival would be greatest when (1) the rival was higher in status and had low market commonality with the focal firm and (2) the rival was lower in status and had high market commonality with the focal firm. This hypothesis was supported. This hypothesis is central to my theorizing and receives support.

Awareness and the Interaction of Relative Status and Market Commonality

I theorized a positive relationship between the interaction of the relative status of a rival and the rival's market commonality with the focal firm's awareness of the rival. This hypothesis was supported. In reconciling this hypothesis with the previous one, an interesting corollary is that the lion's share of firms' competitive attention is directed towards higher-status rivals that have a significant presence in the firm's markets but that the firm is likely to forbear from launching action against these rivals. Another interesting corollary is that, a low-status rival that has no presence in a focal firm's markets is

unlikely to be on the focal firm's radar but the focal firm is likely to be prominent on the rival's radar. This asymmetry may have interesting consequences for the evolution of inter-firm competition.

Findings: Study 2

Key to the theory leading to hypothesis 5 was that decision-makers within firms associate different combinations of a rival's relative status and market commonality with the notions of "opportunity" and "threat" and that that in turn leads them to be motivated to launch competitive action in some circumstances. Specifically, I theorized that decision-makers perceive launching action against rivals of higher-status that have low market commonality and rivals of lower-status that have high market commonality as "opportunities" and that they are likely to launch action in those cases. On the other hand, I theorized that they would consider higher-status rivals with high market commonality as "threats" and forbear from launching action.

I sought to validate this theoretical mechanism by testing a mediated moderation model through an experiment. The model I tested was one of the perception of a situation as an opportunity or threat mediating a negative interaction between a rival's relative status and market commonality and the likelihood of launching action. Results from the experiment supported the theory.

Contributions

The study makes contributions to the literatures in competitive dynamics, multi-market contact, status and entrepreneurial action. Competitive dynamics scholars have long recognized that purposeful competitive action against rivals is key to market share gain (Chen and Miller, 2012; Smith *et al* 2001) and they have been keenly interested in

the antecedents to competitive action. However, the cognitive and psychological drivers of competitive action have begun to get attention only relatively recently. For example, Livengood and Reger noted (2010) that “competitive dynamics theory is well-developed in understanding economic incentives; we know less about the role that non-economic factors play in understanding competitive dynamics.” My dissertation informs this stream by unlocking the role of status as a cognitive antecedent to competitive action.

More specifically, from an AMC perspective (Chen, 1996; Chen *et al*, 2007), it seems that a rival’s relative status exerts opposing effects on the motivation and capability components. Firms should be more motivated to compete with higher-status rivals but fear of retaliation should exert a dampening effect on that motivation. The natural puzzle is why the low-status firms that do wage wars against high-status ones do so. I answered this puzzle by theorizing and testing the contingent role of market commonality. A low-status firm has much to fear from a rival that it meets in markets but less to fear from one that is outside of its key markets.

The idea of forbearance (Baum and Korn, 1996; Edwards, 1955; Yu and Cannella, 2013) has been a key underpinning in research on multi-market contact (multi-market contact). Scholars have recognized that contact across multiple markets may lead firms to exercise restraint in competitive behavior owing to the fear of retaliation across markets (Baum and Korn, 1996, 1999; Chen, 1996; Gimeno and Woo, 1996). While the term “mutual forbearance” has been used in much prior research, some scholars have recognized that forbearance may be asymmetric (e.g. Chen, 1996).

Although there is broad support for the idea that contact across multiple markets attenuates rivalry, there is keen interest in understanding contingencies that moderate the

forbearance hypothesis and in a “more refined understanding” (Yu and Cannella, 2013, p. 100). My dissertation contributes to this stream by highlighting the role of the relative status of a rival as such a contingency. In addition, I answer a call in a recent review of the multi-market contact literature, (Yu and Cannella, 2013, p. 101; p. 102) for research that relaxes the assumption of full observability, i.e., the assumption that defections from equilibrium can be perfectly detected and punished.”

My dissertation contributes to the literature in status as well. Given that certain streams of past research, such as negotiated order theory (Strauss *et al*, 1973), have put forward the argument that status positions are negotiated on a continuous basis and many scholars (e.g. Benjamin and Podolny, 1999; Podolny, 1993; Podolny, 2001; Washington and Zajac, 2005) have suggested that significant benefits accrue to higher-status actors, it is natural that status hierarchies would spark off conflict. However, there is a large stream of research (summarized in Magee and Galinsky, 2008) that documents that several forces including expectancy and behavioral confirmation and hierarchy enhancing belief systems lead to inertia within status hierarchies. A natural and key question in this context is under what conditions status hierarchies become contested as opposed to taken for granted. While some scholars (Gould, 2003; He and Huang, 2011) have attempted to answer this question by advancing the notion that ambiguity with status hierarchies breeds conflict, that still does not explain why even very clear status hierarchies are contested sometimes. My dissertation helps to answer this question in the context of status hierarchies among firms by theorizing and testing that structural properties of firms’ engagement in markets may provide an explanation.

My dissertation also contributes to the literature in entrepreneurial action. A basic premise within theories of entrepreneurial action is that “Entrepreneurship requires action” (McMullen and Shepherd, 2006, 132). Like competitive dynamics, this stream of research is consistent with Austrian Economics (Kirzner, 1973; Schumpeter, 1934) in recognizing the role of purposeful action by entrepreneurs. However, the primary focus within this stream is on exactly how prospective entrepreneurs go about acting (McMullen and Shepherd, 2006).

Scholars within the area (e.g. Shane, 2000; Shaver and Scott, 1992) have recognized that opportunity recognition represents the beginning of the process of entrepreneurial action. For example, Shane notes (2000, p. 448) that “before...entrepreneurial exploitation, entrepreneurs must discover opportunities...because opportunities do not appear in pre-packaged form, the process of opportunity identification is far from trivial.” Given the pivotal role of opportunity identification in the process of entrepreneurship, several studies have attempted to investigate antecedents. Despite considerable progress in the area scholars maintain that the field is at a nascent stage. Gregoire *et al* note (2010, 413) that “a great deal remains to be learned about opportunity recognition.” Past research in this area (e.g. Shaver and Scott, 1992) has noted the importance of considering how entrepreneurs construct representations of the external environment and the importance of context in opportunity identification. My dissertation helps to shed new light on this area, specifically by noting the socio-cognitive process that leads decision makers to classify specific combinations of a rival’s relative status and market commonality as opportunities or threats (Dutton and Jackson, 1987; Jackson and Dutton, 1988).

Finally, my dissertation sets a precedent on the empirical front. As noted earlier, key constructs like awareness and motivation have never been explicitly operationalized in prior literature within competitive dynamics, although they have been an important part of theorizing. For instance, while Chen *et al* (2007) theorize that a rival's relative scale increases a focal firm's awareness of the rival, they do not measure awareness. Explicit measures of these important variables can enhance validity even when the outcome of interest is actual competitive action or response. For example, in studies that measure propensity for competitive action as an outcome, explicitly capturing these variables and testing their roles as mediators can help to rule out alternative explanations.

Limitations

The sample I used for the field study was restricted to a set of food trucks in one city within the United States. Future research should attempt replications on larger samples from different industries, geographies and product markets. It seems that particularly appropriate samples on which to replicate the findings would be those drawn from high-velocity industries (Brown and Eisenhardt, 1997; Eisenhardt and Martin, 2000). The study of "out-of-equilibrium" situations within multi-market contact research necessitates the selection of such industries as they are simply likelier to contain such situations. An alternative would be industries that have substantial churn, with firms entering and exiting on a continuous basis, as this study did.

In addition, while I measured motivation to launch action, I did not distinguish among different types of competitive actions. Past research in competitive dynamics (e.g. Chen *et al*, 1992) notes, for example, that strategic and tactical actions have different antecedents. Future research should investigate whether the relative status of a rival and

market commonality have different impacts on actions of different types. It would be interesting to study whether the four different zones in Figure 2 differ in how they influence strategic and tactical actions.

One of the overwhelming conclusions from past competitive dynamics research is that competitive actions and responses have markedly different antecedents (Chen, 1996; Gnyawali and Madhavan, 2001; Yu *et al*, 2009). In many situations where firms may mutually forbear from launching action, for example, they are likely to react quickly and aggressively if either party defected (Chen, 1996; Gnyawali and Madhavan, 2001; Yu *et al*, 2009). While my dissertation focuses on the motivation to launch competitive action, I did not consider how firms differ about responding to actions from rivals in the different zones of Figure 2. The consideration of competitive response along with the dynamics of competition, as described above, would allow scholars to develop a rich and comprehensive understanding of the evolution of competition, status and markets.

Finally, I measured awareness and motivation through single-item scales. While the second round of semi-structured interviews helped to validate responses, future research should develop and validate multi-item scales for these constructs. A key limiting factor in using such scales is the cognitive load on respondents when they need to answer multiple questions, each question about several entities. Nevertheless, the development and validation of scales would help in laboratory experiments as well as field studies where it is possible to obtain greater amounts of time from respondents.

Directions for future research

Three directions seem especially promising for future research. First, it is quite possible that the different zones in Figure 2 represent temporally distinct phases of competitive engagement at the dyadic level. As I noted when discussing the consequences of the theory and results, a high-status firm may perceive a low-status rival that is outside of its key markets as being in zone 1 while the low-status rival may perceive the high-status focal firm as being in zone 4. Launching action against the focal firm would usually move the rival from zone 1 to zone 2 from the vantage point of the focal firm. Once that happens, the focal firm is likelier to be motivated to attack the rival and it is possible that the ensuing battle and the changes in market commonality that result may lead to further shifts in the focal firm's perception of the zone that the rival belongs to and vice-versa. It is also possible that mutual forbearance may result from both attaining high-status and having high market commonality with each other (although, as I pointed out earlier, extant literature points to status usually taking long to change even when it does). Future research should delve into the dynamics of such engagement in the context of status and markets. It seems that such a question may be best investigated through a combination of simulation (Davis, Eisenhardt and Bingham, 2007) and empirical methods.

Second, the asymmetry in awareness and motivation is noteworthy. Although popular media may allude to two firms as arch rivals e.g. Apple and Samsung, it is quite possible that one of them may be significantly more motivated to compete with the other than vice-versa. A particularly intriguing finding was that there was no reciprocity at all in the matrix of motivation among food trucks. While competitive dynamics scholars

have recognized the lack of symmetry in competitive relationships (Chen, 1996), the consequences of such asymmetry for the evolution of competition and industries merits further attention.

Finally, an interesting finding was that, when compared to market commonality, the relative status of a rival played a far greater role in determining a focal food truck's attention to the rival than did the rival's market commonality with the focal food truck. While this dissertation is primarily concerned with how a rival's relative status and market commonality act in conjunction to determine a focal firm's awareness of and motivation to launch action, future research should delve deeper into the relative importance of different antecedents to awareness and motivation and investigate the psychological processes behind one antecedent having a substantially greater role than the other. While understanding the relative importance of different antecedents would improve the predictive power of research, a deeper understanding of the processes involved would put that research on robust theoretical footing.

Summary

Given the ambiguous understanding of how the relative status of a rival impacts a focal firm's motivation to launch action, I set out to study the role of structural properties of market engagement as a contingency. I theorized that market commonality, or the extent to which a rival is a significant player in markets important to a focal firm, is a key contingency in the relationship between a rival's relative status and a focal firm's motivation to launch action against the rival. The key theoretical contribution is that rival's relative status and market commonality interact negatively to predict the focal firm's motivation to launch action against the rival and interact positively to predict the

focal firm's awareness of the rival. The theory received support in a field study on gourmet food trucks in Lexington and in an experiment through Amazon's Mechanical Turk tool. My dissertation contributes to the literatures in status, competitive dynamics, multi-market contact and entrepreneurial action.

APPENDIX 1

Food truck (pseudonym)	Food type (pseudonym)	Status score
Chevrolet	Rabbit	3.44
Buick	Bear	3.73
Ferrari	Lion	3.77
Mercedes	Tiger	3.00
Volkswagen	Dog	2.63
Toyota	Cat	3.08
Honda	Horse	3.45
Subaru	Bison	4.19
BMW	Dog	3.09
Jaguar	Dog	2.60
Cadillac	Deer	2.92
Saab	Antelope	2.91
Nissan	Zebra	2.92
Kia	Dog	3.56
Hyundai	Rhino	3.80
Renault	Dog	3.80
Bugatti	Hippo	2.42

APPENDIX 2

Food truck pseudonym	Jun 26th Morning	Jun 26th Evening	Jun 27th Morning	Jun 27th Evening	Jun 28th Morning	Jun 28th Evening	Jun 29th Morning	Jun 29th Evening
Kia								
Subaru							Norway	Sweden
Saab						Japan		
Ferrari						USA		
Tesla								
Ford				UK				
Mercedes	Canada		Korea		Canada			
Dodge							Brazil	Brazil
Pontiac	Mexico		China				Sweden	Sweden
Renault				Uruguay				
Land Rover		Argentina		Argentina		Argentina	Argentina	
Honda								
Buick				France		France		France
Jaguar						Spain		
Nissan		USA		Germany		UK		USA
Jeep		UK				Germany		UK
Chevrolet		Luxembourg	Italy	Luxembourg		Luxembourg		Luxembourg
Volvo						Russia	Sweden	Sweden
Lincoln								
Suzuki								
Hyundai	Turkey	Thailand			India			
Holden							Hungary	
Porsche			China			Nigeria		
Lamborghini								
Rover								
Tata								
Cadillac				Uruguay				Australia
Bugatti	Singapore				Hungary	Ghana	Hungary	
Chrysler								Romania

APPENDIX 3

Interview with Toyota:

Q. How did you approach the status question? Why did you rank Ford as very high on status? Why did you rank Tesla and Pontiac as high status (Tesla and Pontiac had generally been ranked relatively low on status by the others).

A. I approached this question based on my perceptions of quality of food. Given my extensive experience, I have a different way of judging quality than regular people. If the food truck has a restaurant I make it a point to visit the restroom. How the restroom looks says a lot about restaurant (or food truck run by the same owners). The food trucks that I ranked high are those that I would eat from or take my family to.

Q. You indicated that you don't watch Bugatti at all. We were surprised, as they seem to have a strong presence at the locations you are at (although they may not be there at the same time as you). Why are you so aware of Hyundai and Chevrolet? They serve different kinds of food than you and Chevrolet doesn't seem to be at the locations you are often at. Why do you watch Jaguar so closely? In general, what factors determine the extent to which you watch other food trucks?

A. In general, there must be something that stands out in a food truck for me to notice. I notice when the food is very good or when the food truck looks really good. I watch Hyundai and Chevrolet because they have good food and are good-looking food trucks. The reason I watch Jaguar is because they serve ...*(a type of food)* and I want to incorporate that in my fare.

Q. You don't seem to be watching Ford very closely but seem very motivated to beat them. Why? You seem very motivated to beat Pontiac?

A. Pontiac has business that I covet, hence indicated high motivation. I respect them for their food and for the appearance of their truck though. As for Ford, I feel I can give them a run for their money. I feel my food is just as good as theirs but they charge more. When we are at events together, people sometimes notice longer queues at their food truck and think more people want their food. But the real reason for shorter queues at my food truck is that I am quicker at service than they are.

Q. It looks like Mercedes, Porsche, Hyundai and Bugatti are often at the same locations that you are at, although may not be at the same time. You seem to not be motivated to launch competitive actions against them. Why?

A. We are all part of the same group and they are my friends.

APPENDIX 4

Interview with Chrysler:

Q. How did you approach the status question? Why did you rank Hyundai so high? Also, why did you rank Ford and Renault so low (they had generally been ranked high by others)? You ranked Nissan at medium-status (Nissan had generally been ranked high by others)?

A. My answer was based on quality of food (*as he saw it*) and the extent to which I know and like the person. I really like Hyundai. I ranked those that I've never tried low.

Q. What determines how closely you watch other food trucks? Why Ford (which had generally been ranked high on status)? Interesting that Suzuki and Porsche are the ones you watch most closely.

A. I watch Ford because they set the trend. They are popular and (*salient to him*). I watch where they are and what they do and their business model. As for Suzuki and Porsche (*which served a type of food similar to what he did*), I watch them to make sure I'm doing different things from them. In general, I believe that developing a niche is better than cut-throat competition.

Q. Why are you so motivated to launch competitive moves against Jaguar and Renault (which serve food of similar type)? Why Ford (which was generally ranked high-status)?

A. I think Jaguar is awful and rigged their way to the top of the popularity charts. As for Renault, I feel I can do much better than them and have better things to offer. Ford because they are the gold standard. It's aiming for the top.

Q. (Explained what I meant by status and elicited his general thoughts on the role of status in this setting)

A. In general, who you know determines who gets good locations, although consistency in food quality too is important.

APPENDIX 5

Interview with Ferrari:

Q. How did you approach the status question? What led you to give Ford such a high rating (Ford had generally been ranked high by everyone)? What about the others that your ranked high?

A. I ranked high those I would eat from. I respect their quality and food. Some of them also happen to be my friends. Jeep (*that he had ranked highly*) because they are the best (*in their category*) in town. Renault (*that he had ranked highly*) because they are older. In general, food trucks are community business, we feel we are in it together. One's win is a win for the entire group.

Q. Why do you watch Hyundai, Jeep, Ford and Nissan so closely? In general, what factors determine which other food trucks you pay attention to and how closely you watch them?

A. The ones I watch most closely are my friends. As for those I don't watch I don't know them.

Q. What makes you so motivated to compete with Kia and Ford? In general, what factors determine how motivated you are to launch competitive moves against other food trucks? Porsche seems to often be at the same locations as you (though not at the same time) and you don't seem aware of or motivated to beat them?

A. I feel that some food trucks steal business. I feel Kia steals business from me by undercutting on price. My quality is very good. I take great care to keep it that way. It's also about whether the other food truck offers a reliable substitute for my fare.

Sometimes, those who go to another food truck simply won't come to mine, because we cater to different kinds of customers who want different things. I just haven't paid much attention to Porsche or noticed them, and they serve a different type of food.

APPENDIX 6

Interview with Porsche:

Q. (General thoughts about competition within this business to begin with)

A. Most of the competition is for locations. Consistency is important, the location owner has to be able to rely upon the food truck.

Q. How did you approach the status question? Why did you rank Renault so low (Renault had generally been ranked high by others)?

A. Our answer was based on Facebook ratings and observing how popular the food trucks were, how long the queues were, in some cases we know and respect the owner. No specific reason for ranking Renault low. They don't bring the food truck out much these days.

Q. How did you approach the awareness question? Why did you rank Jeep and Kia so high on how aware you were of them?

A. We keenly observe Jeep and Kia and their practices with a view to emulating them. We are aware of and watching them because their business models are similar to ours. We also know and respect the owner of Jeep. We observe the menus and prices of Jeep and Kia and study their processes. Also, we observed and learned from other food trucks when we were growing, not as much now given that we've made it. We observe Mercedes because they are our friends, have great curb appeal, and you can generally see long queues at them. In general, we notice the most popular food trucks at events.

Q. How did you approach the motivation question?

A. We indicated high motivation to beat Jeep because they serve the same type of food and are close to us in business model, and low motivation to beat Ferrari and Nissan because they serve different types of food and at different price points so we don't really compete. Someone heading to them at an event would not be heading to us.

Q. (Explained what I meant by status and elicited general thoughts on status and competition in this context)

A. It is really important to know the location owners. We took off when we got *(a premier location)* on Thursday evenings. That made it easy for us to get other locations. It was not easy to get that location on Thursday evenings. We had to start there Sunday evenings, a time that there weren't many customers. One day an opportunity opened up on Thursday evening, we took it, were consistent in our quality, and it clicked. In general, it is important to get the prime times and location, for example, *(a premier micro-brewery)* on a Friday evening. The time and place is important. Food trucks that serve certain types of food cannot be at certain locations.

APPENDIX 7

Interview with Mercedes:

Q. How did you approach the status question? Why did you rank Hyundai and Bugatti so low?

A. Quality as I perceived it. Hyundai is low-quality and Bugatti is sub-standard!

Q. How did you approach the awareness question? Why do you watch Rover and Jeep, and Hyundai? Why do you not watch Bugatti, surprising with Bugatti as they are often at the same locations though not at the same time?

A. I watch Rover because I don't want to be where they are, especially at events. I don't hold a high opinion or want to be associated or branded with them. I don't watch Bugatti because their quality is poor and they are not of the standard I would hold in high regard. I watch Jeep and Hyundai because I know the owners.

Q. How did you approach the motivation question? Why are you so motivated to beat Ford (which had generally been ranked high in status)?

A. I am motivated to beat them because they are a gold-standard.

REFERENCES

- Adut, A. (2008). *On scandal. Moral disturbances in society, politics, and art*. Cambridge: Cambridge Univ. Press.
- Anderson, C., John, O. P., Keltner, D., and Kring, A. M. (2001). Who attains social status? Effects of personality and physical attractiveness in social groups. *Journal of personality and social psychology*, 81(1), 116.
- Angrist, J. D., and Pischke, J. S. (2008). *Mostly harmless econometrics: An empiricist's companion*. Princeton university press.
- Bain, J. S. (1956). *Barriers to new competition* (Vol. 3, p. 55). Cambridge, MA: Harvard University Press.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of management*, 17(1), 99-120.
- Baum, J. A., and Korn, H. J. (1996). Competitive dynamics of interfirm rivalry. *Academy of Management journal*, 39(2), 255-291.
- Baum, J. A., and Korn, H. J. (1999). Dynamics of dyadic competitive interaction. *Strategic Management Journal*, 251-278.
- Bendersky, C., and Hays, N. A. (2012). Status conflict in groups. *Organization Science*, 23(2), 323-340.
- Bendersky, C., and Shah, N. P. (2012). The cost of status enhancement: Performance effects of individuals' status mobility in task groups. *Organization Science*, 23(2), 308-322.
- Benjamin, B. A., and Podolny, J. M. (1999). Status, quality, and social order in the California wine industry. *Administrative science quarterly*, 44(3), 563-589.
- Bernheim, B. D., and Whinston, M. D. (1990). Multimarket contact and collusive behavior. *The RAND Journal of Economics*, 1-26.
- Billings, R. S., Milburn, T. W., and Schaalman, M. L. (1980). A model of crisis perception: A theoretical and empirical analysis. *Administrative Science Quarterly*, 300-316.
- Bingham, C. B., & Eisenhardt, K. M. (2011). Rational heuristics: the 'simple rules' that strategists learn from process experience. *Strategic Management Journal*, 32(13), 1437-1464.
- Borgatti, S. P., Everett, M. G., and Freeman, L. C. (2002). *Ucinet for Windows: Software for social network analysis*.
- Brandenburger, A. M., and Nalebuff, B. J. (2011). *Co-opetition*. Crown Business.
- Brown, S. L., & Eisenhardt, K. M. (1997). The art of continuous change: Linking complexity theory and time-paced evolution in relentlessly shifting organizations. *Administrative science quarterly*, 1-34.

- Caves, R. E., and Porter, M. E. (1977). From entry barriers to mobility barriers: Conjectural decisions and contrived deterrence to new competition. *The quarterly journal of economics*, 241-261.
- Chandler, J., and Shapiro, D. (2016). Conducting clinical research using crowdsourced convenience samples. *Annual Review of Clinical Psychology*, 12.
- Chatterjee, A., and 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(3), 351-386.
- Chen, M. J. (1996). Competitor analysis and interfirm rivalry: Toward a theoretical integration. *Academy of management review*, 21(1), 100-134.
- Chen, M. J., and Hambrick, D. C. (1995). Speed, stealth, and selective attack: How small firms differ from large firms in competitive behavior. *Academy of management journal*, 38(2), 453-482.
- Chen, E. L., Katila, R., McDonald, R., & Eisenhardt, K. M. (2010). Life in the fast lane: Origins of competitive interaction in new vs. established markets. *Strategic Management Journal*, 31(13), 1527-1547.
- Chen, M. J., and Miller, D. (2012). Competitive dynamics: Themes, trends, and a prospective research platform. *The Academy of Management Annals*, 6(1), 135-210.
- Chen, M. J., Smith, K. G., and Grimm, C. M. (1992). Action characteristics as predictors of competitive responses. *Management science*, 38(3), 439-455.
- Chen, M. J., Su, K. H., and Tsai, W. (2007). Competitive tension: The awareness-motivation-capability perspective. *Academy of Management Journal*, 50(1), 101-118.
- Chen, Y. R., Peterson, R. S., Phillips, D. J., Podolny, J. M., and Ridgeway, C. L. (2012). Introduction to the special issue: Bringing status to the table—attaining, maintaining, and experiencing status in organizations and markets.
- Chen, M. J., Venkataraman, S., Sloan Black, S., and MacMillan, I. C. (2002). The role of irreversibilities in competitive interaction: Behavioral considerations from organization theory. *Managerial and Decision Economics*, 23(4-5), 187-207.
- Chin, M. K., Hambrick, D. C., and Treviño, L. K. (2013). Political ideologies of CEOs: The influence of executives' values on corporate social responsibility. *Administrative Science Quarterly*, 58(2), 197-232.
- Connelly, B. L., Tihanyi, L., Ketchen, D. J., Carnes, C. M., and Ferrier, W. J. (2017). Competitive repertoire complexity: Governance antecedents and performance outcomes. *Strategic Management Journal*, 38(5), 1151-1173.
- Cyert, R. M., and March, J. G. (1963). A behavioral theory of the firm. *Englewood Cliffs, NJ*, 2, 169-187.
- D'aveni, R. A. (1995). Coping with hypercompetition: Utilizing the new 7S's framework. *The Academy of Management Executive*, 9(3), 45-57.

- D'aveni, R. A. (2010). *Hypercompetition*. Simon and Schuster.
- Davis, J. P., Eisenhardt, K. M., and Bingham, C. B. (2007). Developing theory through simulation methods. *Academy of Management Review*, 32(2), 480-499.
- Dearborn, D. C., and Simon, H. A. (1958). Selective perception: A note on the departmental identifications of executives. *Sociometry*, 21(2), 140-144.
- DiMaggio, P., and Powell, W. W. (1983). The iron cage revisited: Collective rationality and institutional isomorphism in organizational fields. *American sociological review*, 48(2), 147-160.
- Dutton, J. E., and Duncan, R. B. (1987). The influence of the strategic planning process on strategic change. *Strategic management journal*, 8(2), 103-116.
- Dutton, J. E., and Jackson, S. E. (1987). Categorizing strategic issues: Links to organizational action. *Academy of management review*, 12(1), 76-90.
- Edwards, C. D. (1955). Conglomerate bigness as a source of power. In *Business concentration and price policy* (pp. 331-359). Princeton University Press.
- Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: what are they?. *Strategic management journal*, 1105-1121.
- Ferrier, W. J. (2001). Navigating the competitive landscape: The drivers and consequences of competitive aggressiveness. *Academy of management journal*, 44(4), 858-877.
- Ferrier, W. J., Smith, K. G., and 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(4), 372-388.
- Fiske, S. T. (2011). *Envy up, scorn down: How status divides us*. Russell Sage Foundation.
- Flynn, F. J. (2003). How much should I give and how often? The effects of generosity and frequency of favor exchange on social status and productivity. *Academy of Management Journal*, 46(5), 539-553.
- Gimeno, J. (2004). Competition within and between networks: The contingent effect of competitive embeddedness on alliance formation. *Academy of Management Journal*, 47(6), 820-842.
- Gimeno, J., and Woo, C. Y. (1996). Hypercompetition in a multimarket environment: The role of strategic similarity and multimarket contact in competitive de-escalation. *Organization science*, 7(3), 322-341.
- Gimeno, J., and Woo, C. Y. (1999). Multimarket contact, economies of scope, and firm performance. *Academy of Management Journal*, 42(3), 239-259.
- Gimeno, J., Woo, C. Y., Baum, J. A., Dutton, J. E., Greenwich, C. T., and Press, J. A. I. (1996). Economic Multiplexity: the Structural Embeddedness of Cooperation. *Advances in strategic management*, 13, 323-361.

- Gnyawali, D. R., He, J., and Madhavan, R. (2006). Impact of co-opetition on firm competitive behavior: An empirical examination. *Journal of Management*, 32(4), 507-530.
- Gnyawali, D. R., and Madhavan, R. (2001). Cooperative networks and competitive dynamics: A structural embeddedness perspective. *Academy of Management review*, 26(3), 431-445.
- Gould, R. V. (2003). *Collision of wills: How ambiguity about social rank breeds conflict*. University of Chicago Press.
- Graffin, S. D., Bundy, J., Porac, J. F., Wade, J. B., and Quinn, D. P. (2013). Falls from grace and the hazards of high-status: The 2009 British MP expense scandal and its impact on parliamentary elites. *Administrative Science Quarterly*, 58(3), 313-345.
- Grégoire, D. A., Barr, P. S., and Shepherd, D. A. (2010). Cognitive processes of opportunity recognition: The role of structural alignment. *Organization science*, 21(2), 413-431.
- Greve, H. R. (2008). Multimarket contact and sales growth: Evidence from insurance. *Strategic Management Journal*, 29(3), 229-249.
- Grimm, C. M., Lee, H., Smith, K. G., and Smith, K. G. (Eds.). (2006). *Strategy as action: Competitive dynamics and competitive advantage*. Oxford University Press.
- Hambrick, D. C., and Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of management review*, 9(2), 193-206.
- Hambrick, D. C., Cho, T. S., and Chen, M. J. (1996). The influence of top management team heterogeneity on firms' competitive moves. *Administrative science quarterly*, 659-684.
- Hahl, O., and Zuckerman, E. W. (2014). The denigration of heroes? How the status attainment process shapes attributions of considerateness and authenticity. *American Journal of Sociology*, 120(2), 504-554.
- Hayek, F. A. (1945). The use of knowledge in society. *The American economic review*, 35(4), 519-530.
- Hayward, M. L., & Hambrick, D. C. (1997). Explaining the premiums paid for large acquisitions: Evidence of CEO hubris. *Administrative science quarterly*, 103-127.
- He, J., and Huang, Z. (2011). Board informal hierarchy and firm financial performance: Exploring a tacit structure guiding boardroom interactions. *Academy of Management Journal*, 54(6), 1119-1139.
- Huberman, B. A., Loch, C. H., and Öncüler, A. (2004). Status as a valued resource. *Social Psychology Quarterly*, 67(1), 103-114.
- Jackson, S. E., and Dutton, J. E. (1988). Discerning threats and opportunities. *Administrative Science Quarterly*, 370-387.

- Jacobson, R. (1992). The “Austrian” school of strategy. *Academy of management review*, 17(4), 782-807.
- Jans, I., and Rosenbaum, D. I. (1997). Multimarket contact and pricing: Evidence from the US cement industry. *International Journal of Industrial Organization*, 15(3), 391-412.
- Jensen, M. (2006). Should we stay or should we go? Accountability, status anxiety, and client defections. *Administrative Science Quarterly*, 51(1), 97-128.
- Johnson, M. D., Hollenbeck, J. R., Humphrey, S. E., Ilgen, D. R., Jundt, D., and Meyer, C. J. (2006). Cutthroat cooperation: Asymmetrical adaptation to changes in team reward structures. *Academy of Management Journal*, 49(1), 103-119.
- Jost, J. T., and Banaji, M. R. (1994). The role of stereotyping in system-justification and the production of false consciousness. *British journal of social psychology*, 33(1), 1-27.
- Jost, J. T., Banaji, M. R., and Nosek, B. A. (2004). A decade of system justification theory: Accumulated evidence of conscious and unconscious bolstering of the status quo. *Political psychology*, 25(6), 881-919.
- Kahneman, D., and Tversky, A. (1984). Choices, values, and frames. *American psychologist*, 39(4), 341.
- Karnani, A., and Wernerfelt, B. (1985). Multiple point competition. *Strategic Management Journal*, 6(1), 87-96.
- Ketchen Jr, D. J., Snow, C. C., and Hoover, V. L. (2004). Research on competitive dynamics: Recent accomplishments and future challenges. *Journal of Management*, 30(6), 779-804.
- Kiesler, S., and Sproull, L. (1982). Managerial response to changing environments: Perspectives on problem sensing from social cognition. *Administrative Science Quarterly*, 548-570.
- Kilduff, G. J., Elfenbein, H. A., and Staw, B. M. (2010). The psychology of rivalry: A relationally dependent analysis of competition. *Academy of Management Journal*, 53(5), 943-969.
- Kirzner, I. (1973). *Competition and Entrepreneurship*. The University of Chicago Press.
- Kovács, B., and Sharkey, A. J. (2014). The paradox of publicity: How awards can negatively affect the evaluation of quality. *Administrative Science Quarterly*, 59(1), 1-33.
- Krackhardt, D. (1988). Predicting with networks: Nonparametric multiple regression analysis of dyadic data. *Social networks*, 10(4), 359-381.
- Livengood, R. S., and Reger, R. K. (2010). That's our turf! Identity domains and competitive dynamics. *Academy of Management Review*, 35(1), 48-66.
- MacMillan, I., McCaffery, M. L., and Van Wijk, G. (1985). Competitors' responses to easily imitated new products—Exploring commercial banking product introductions. *Strategic Management Journal*, 6(1), 75-86.

- Magee, J. C., and Galinsky, A. D. (2008). 8 Social Hierarchy: The self-reinforcing nature of power and status. *Academy of Management annals*, 2(1), 351-398.
- Marcel, J. J., Barr, P. S., & Duhaime, I. M. (2011). The influence of executive cognition on competitive dynamics. *Strategic Management Journal*, 32(2), 115-138.
- Mason, E. S. (1939). Price and production policies of large-scale enterprise. *The American Economic Review*, 29(1), 61-74.
- McMullen, J. S., and Shepherd, D. A. (2006). Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur. *Academy of Management review*, 31(1), 132-152.
- McPherson, M., Smith-Lovin, L., and Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual review of sociology*, 27(1), 415-444.
- McWilliams, A., and Smart, D. L. (1993). Efficiency v. structure-conduct-performance: Implications for strategy research and practice. *Journal of Management*, 19(1), 63-78.
- Merton, R. K. (1968). The Matthew effect in science: The reward and communication systems of science are considered. *Science*, 159(3810), 56-63.
- Mervis, C. B., and Rosch, E. (1981). Categorization of natural objects. *Annual review of psychology*, 32(1), 89-115.
- Miller, D., and Chen, M. J. (1994). Sources and consequences of competitive inertia: A study of the US airline industry. *Administrative science quarterly*, 1-23.
- Miller, D., and Chen, M. J. (1996). The simplicity of competitive repertoires: An empirical analysis. *Strategic management journal*, 17(6), 419-439.
- Mintzberg, H. (1978). Patterns in strategy formation. *Management science*, 24(9), 934-948.
- Mises, L. V. (1949). 1998. *Human Action: A Treatise on Economics*.
- Muller, D., Judd, C. M., and Yzerbyt, V. Y. (2005). When moderation is mediated and mediation is moderated. *Journal of personality and social psychology*, 89(6), 852.
- Nag, R., Hambrick, D. C., and Chen, M. J. (2007). What is strategic management, really? Inductive derivation of a consensus definition of the field. *Strategic management journal*, 28(9), 935-955.
- Nelson, R. R., and Sidney, G. (1982). Winter. 1982. *An evolutionary theory of economic change*, 929-964.
- Ocasio, W. (1997). Towards an attention-based view of the firm. *Strategic management journal*, 187-206.
- Ofem, B., Floyd, T. M., and Borgatti, S. P. (2012). Social Networks and Organizations. *A Companion to Organizational Anthropology*, 147-166.
- Piazza, A., and Castellucci, F. (2014). Status in organization and management theory. *Journal of Management*, 40(1), 287-315.

- Podolny, J. M. (1993). A status-based model of market competition. *American journal of sociology*, 98(4), 829-872.
- Podolny, J. M. (2001). Networks as the pipes and prisms of the market. *American journal of sociology*, 107(1), 33-60.
- Porac, J. F., and Thomas, H. (1990). Taxonomic mental models in competitor definition. *Academy of management Review*, 15(2), 224-240.
- Porac, J. F., Thomas, H., Wilson, F., Paton, D., and Kanfer, A. (1995). Rivalry and the industry model of Scottish knitwear producers. *Administrative Science Quarterly*, 203-227.
- Porter, M. E. (1979). How competitive forces shape strategy. *Strategic Planning: Readings*, 102-117.
- Porter, M. E. (1980). Industry structure and competitive strategy: Keys to profitability. *Financial Analysts Journal*, 36(4), 30-41.
- Pratto, F., Sidanius, J., Stallworth, L.M. and Malle, B.F., 1994. Social dominance orientation: A personality variable predicting social and political attitudes. *Journal of personality and social psychology*, 67(4), p.741.
- Reger, R. K., and Huff, A. S. (1993). Strategic groups: A cognitive perspective. *Strategic management journal*, 14(2), 103-123.
- Reger, R. K., and Palmer, T. B. (1996). Managerial categorization of competitors: Using old maps to navigate new environments. *Organization Science*, 7(1), 22-39.
- Rindova, V., Ferrier, W. J., and Wiltbank, R. (2010). Value from gestalt: how sequences of competitive actions create advantage for firms in nascent markets. *Strategic Management Journal*, 31(13), 1474-1497.
- Rindova, V. P., Pollock, T. G., and Hayward, M. L. (2006). Celebrity firms: The social construction of market popularity. *Academy of management review*, 31(1), 50-71.
- Rosch, E., and Mervis, C. B. (1975). Family resemblances: Studies in the internal structure of categories. *Cognitive psychology*, 7(4), 573-605.
- Salop, S. C., & White, L. J. (1988). Private antitrust litigation: An introduction and framework. *Private Antitrust Litigation*, 3(11).
- Scherer, F. M., & Ross, D. (1990). *Economic Performance*. Boston: Houghton-Mifflin.
- Schneider, S. C., and De Meyer, A. (1991). Interpreting and responding to strategic issues: The impact of national culture. *Strategic management journal*, 12(4), 307-320.
- Schomburg, A., Grimm, C. M., & Smith, K. G. (1994). Avoiding new product warfare: The role of industry structure. *Advances in strategic management*, 10(Part B), 145-173.
- Schumpeter, J. A. (1934). Change and the Entrepreneur. *Essays of JA Schumpeter*.
- Schumpeter, J. A. (1942). *Socialism, capitalism and democracy*. Harper and Brothers.

- Shane, S. (2000). Prior knowledge and the discovery of entrepreneurial opportunities. *Organization science*, 11(4), 448-469.
- Shaver, K. G., and Scott, L. R. (1992). Person, process, choice: The psychology of new venture creation. *Entrepreneurship theory and practice*, 16(2), 23-46.
- Shepherd, W. G., and Shepherd, J. M. (2003). *The economics of industrial organization*. Waveland Press.
- Simmel, G. (1950). Superordination and subordination and degrees of domination and freedom. In K. Wolff (Ed.), *The sociology of Georg Simmel*: 268-303. New York: Free Press.
- Simon, H. A. (1957). *Models of man*. New York: Wiley.
- Smith, K. G., Ferrier, W. J., and Ndofor, H. (2001). Competitive dynamics research. *The Blackwell handbook of strategic management*, 309-354.
- Smith, K. G., & Grimm, C. M. (1987). Environmental variation, strategic change and firm performance: A study of railroad deregulation. *Strategic Management Journal*, 8(4), 363-376.
- Smith, K. G., Grimm, C. M., Gannon, M. J., and Chen, M. J. (1991). Organizational information processing, competitive responses, and performance in the US domestic airline industry. *Academy of Management journal*, 34(1), 60-85.
- Sonenshein, S., Nault, K., and Obodaru, O. (2017). Competition of a different flavor: How a strategic group identity shapes competition and cooperation. *Administrative Science Quarterly*, 62(4), 626-656.
- Sorenson, O. (2014). Status and reputation: synonyms or separate concepts?. *Strategic Organization*, 12(1), 62-69.
- Spence, A. M. (1973). Time and communication in economic and social interaction. *The Quarterly Journal of Economics*, 87(4), 651-660.
- Spence, M. (1974). Competitive and optimal responses to signals: An analysis of efficiency and distribution. *Journal of Economic theory*, 7(3), 296-332.
- Sproull, L., Weiner, S., and Wolf, D. (1978). *Organizing an anarchy: Belief, bureaucracy, and politics in the National Institute of Education*. University of Chicago Press.
- Strauss, A., Schatzman, L., ERLICH, D., Bucher, R., and Sabshin, M. (1973). The hospital and its negotiated order. Reprinted in G. Salaman and K. Thompson (Eds.), *People and organizations*.
- Stuart, T. E., Hoang, H., and Hybels, R. C. (1999). Interorganizational endorsements and the performance of entrepreneurial ventures. *Administrative science quarterly*, 44(2), 315-349.

- Tajfel, H., and Turner, J. C. (1986). The social identity theory of intergroup behavior. In S. Worchel and WG Austin (Eds.), *Psychology of intergroup relations*: 7-24. Chicago: Nelson-Hall.
- Tsai, W., Su, K. H., and Chen, M. J. (2011). Seeing through the eyes of a rival: Competitor acumen based on rival-centric perceptions. *Academy of Management Journal*, 54(4), 761-778.
- Tversky, A. (1977). Features of similarity. *Psychological review*, 84(4), 327.
- Washington, M., and Zajac, E. J. (2005). Status evolution and competition: Theory and evidence. *Academy of Management Journal*, 48(2), 282-296.
- Weber, M. (1978). *Economy and society: An outline of interpretive sociology* (Vol. 1). Univ of California Press.
- Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic management journal*, 5(2), 171-180.
- Wiseman, R. M., and Gomez-Mejia, L. R. (1998). A behavioral agency model of managerial risk taking. *Academy of management Review*, 23(1), 133-153.
- Young, G., Smith, K. G., and Grimm, C. M. (1996). "Austrian" and industrial organization perspectives on firm-level competitive activity and performance. *Organization Science*, 7(3), 243-254.
- Young, G., Smith, K. G., Grimm, C. M., and Simon, D. (2000). Multimarket contact and resource dissimilarity: A competitive dynamics perspective. *Journal of Management*, 26(6), 1217-1236.
- Yu, T., and Cannella Jr, A. A. (2007). Rivalry between multinational enterprises: An event history approach. *Academy of Management Journal*, 50(3), 665-686.
- Yu, T., and Cannella Jr, A. A. (2013). A comprehensive review of multimarket competition research. *Journal of Management*, 39(1), 76-109.
- Yu, T., Subramaniam, M., and Cannella Jr, A. A. (2009). Rivalry deterrence in international markets: Contingencies governing the mutual forbearance hypothesis. *Academy of Management Journal*, 52(1), 127-147.