© Academy of Management Journal
2012, Vol. 55, No. 1, 93–110.
http://dx.doi.org/10.5465/amj.2008.0330

COMPETITOR ANALYSIS AND FOOTHOLD MOVES

JOHN W. UPSON
University of West Georgia

DAVID J. KETCHEN JR.
BRIAN L. CONNELLY
Auburn University

ANNETTE L. RANFT
University of Tennessee

A foothold is a small position that a firm intentionally establishes within a market in which it does not yet compete. We extend theory on competitive dynamics to examine relationships between competitor analysis and foothold moves. Whereas it seems logical that an antecedent that is negatively related to the likelihood of foothold attack would be positively related to the likelihood of foothold withdrawal, we theorize and find evidence to the contrary. In a sample of firms with footholds, market commonality, resource similarity, and their interaction are each related in the same direction to both foothold attack and withdrawal.

The competitive dynamics literature examines the moves that rivals make as they maneuver for advantageous market positions. The progress made toward understanding rivalry has been substantial (Chen, 2009). One potentially important type of market position that has mostly escaped attention is a *foothold*, which we define as a small position that a firm intentionally establishes within a market in which it does not yet compete. At a given point in time, a firm that owns a foothold can launch a foothold attack (a competitive action such as making an acquisition or beginning a promotional campaign), withdraw the foothold (cease selling products or services in the market), or simply maintain the foothold (akin to taking the "wait-and-see" attitude described by Smith, Grimm, Gannon, and Chen [1991] and Young, Smith, Grimm, and Simon [2000]).

Foothold moves (attacks and withdrawals) can have important implications for the nature of rivalry between firms. Consider the case of TriCom and IniTech,[1] two firms that compete in multiple markets in the U.S. computer-related manufacturing and software industry. In 2005, TriCom enjoyed a significant share of the server operating system market, while IniTech held a foothold in this market. Meanwhile, both firms were major players in the computer server market. One day, TriCom attempted to attract new customers in the latter market via an aggressive new promotional campaign that touted its customer service. Shortly thereafter, IniTech made a move with its foothold, introducing software with useful functionality that was not offered in TriCom's software. The net result was increased rivalry between TriCom and IniTech in two markets.

Augmenting this anecdotal evidence, some past research asserts that footholds and foothold moves matter to rivalry. Karnani and Wernerfelt suggested that a "mutual foothold equilibrium" wherein each of two firms owns a small share of a market that the other dominates can reduce rivalry, because each firm "has a stick with which to discipline the other firm" (1985: 90). Hambrick and Fredrickson described IKEA's international expansion strategy as establishing a "foothold by opening a single store in each targeted country" (2005: 58), using the foothold to establish IKEA as a unique brand in these markets, and then opening more stores. Although such work is suggestive of footholds' importance (see also Anand, Mesquita, & Vassolo, 2009; Haveman & Nonnemaker, 2000), building theory about what prompts foothold moves remains an unfulfilled need.

We appreciate the research support provided by The NPD Group, the Lowder Center for Family Business and Entrepreneurship at Auburn University, and the College of Business at Florida State University.

[1] TriCom and IniTech are pseudonyms for firms in this study's sample. Disguised names are used because of a nondisclosure agreement with a data provider.

Editor's note: The manuscript for this article was accepted for publication during the term of *AMJ*'s previous editor-in-chief, R. Duane Ireland.

Our study is aimed at helping to narrow the gap between what little is known about footholds and their potential importance to competition. Viewed broadly, our theoretical contribution lies in extending competitive dynamics theory to examine foothold moves. Undoubtedly, footholds have been included among other market positions in the samples of past studies, but inquiry has yet to specifically focus on and build knowledge about footholds.

In particular, we examine how competitor analysis influences foothold attacks and withdrawals. Competitor analysis centers on market commonality ("the degree of presence that a competitor manifests in the markets in which it overlaps with the focal firm" [Chen, 1996: 106]) and resource similarity (the extent to which competitors possess comparable strategic endowments [Chen, 1996]). Although Chen (1996) theorized that these two constructs may have both independent and interaction effects on competitive moves, most studies do not examine potential interactions, and there is no extant evidence about such interactions for footholds.

Davis famously noted that "interesting theories deny certain assumptions of their audience, while non-interesting theories affirm certain assumptions of their audience" (1971: 309). In examining the implications of competitor analysis for foothold moves, we uncover an interesting paradox. Launching a foothold attack takes a foothold in a much different—perhaps opposite—direction from withdrawing the foothold. It would seem logical, therefore, to assume that a competitive factor that is negatively related to the likelihood of foothold attack would be positively related to the likelihood of foothold withdrawal. However, we extend theory from competitive dynamics to argue that both market commonality and resource similarity are associated in the same direction with both the likelihood of launching a foothold attack and the likelihood of foothold withdrawal in a sample of firms with footholds. We also apply this approach to interactions between market commonality and resource similarity, predicting that the likelihood of attack and the likelihood of withdrawal increase when both antecedents are low.[2]

Support for our predictions would indicate that, despite the importance of market commonality and resource similarity as predictors of competitive moves for other market positions, they only reveal *whether* a foothold move is likely, not *which* move is likely. Such findings would have important implications. First, they would help establish the boundary conditions of key tenets within theory on competitive dynamics (cf. Bacharach, 1989). If the nature of market commonality and resource similarity's effects among footholds are different from their effects among other market positions, as investigated in past studies, understanding of the roles of these predictors in rivalry would be enriched and clarified. Support for our theorizing also would suggest that footholds can be uniquely potent competitive weapons. Competitor analysis can usually reveal what move a rival is likely to make, allowing a firm to prepare for the move. When a rival owns a foothold, however, competitor analysis only tells a firm that the rival is likely to make a move; it sheds no light on whether the move will be an attack or a withdrawal. This makes the firm less able to accurately forecast its rival's future strategic direction. Such unpredictability enhances the value of a foothold as a competitive deterrent.

THEORY AND HYPOTHESES

Explaining each component of our definition of a foothold can shed additional light on our conceptualization. By *small position*, we mean owning a very modest amount of market share. *Intentionally establishes* denotes that small positions resulting from the decline of an underperforming unit are excluded from our definition of footholds. Regarding the term *market*, our study's focus is on footholds that are established in product-markets, but we leave the term intentionally broad to capture other important customer-based concepts, such as geographic markets (e.g., Hambrick & Fredrickson, 2005). *In which it does not yet compete* is included as part of the definition to exclude "fighting brands"—lower-end brands that are created to try protect a firm's share in a market in which it is already active without damaging the firm's existing brands (Porter, 1980). Examples include Celeron, which Intel introduced to fight Advanced Micro Devices, and Song, introduced by Delta to fight AirTran and Jet Blue.

Firms likely look toward their competitors when considering whether to make a foothold move (cf. Porac & Thomas, 1990). Research on competitor analysis is particularly informative in this regard because it describes how firms evaluate their competition and choose competitive moves (Chen,

[2] These predictions are not meant to imply that a firm will make both moves using a given foothold. At any point in time, a firm can launch a foothold attack or withdraw the foothold, but not both. Instead, our focus here is on tendencies we expect to find in a sample. We appreciate an anonymous reviewer's prompting us to be clear about this issue.

1996). Scholars have identified three underlying drivers of such moves. The first is awareness of a competitor's moves. A firm is more likely to respond to a rival's competitive move to the extent that it notices and pays attention to the move. At the same time, awareness is generally considered to be a prerequisite for any move (Chen, 1996). Therefore, once a firm is aware of a rival's move, its attention then turns to competitor analysis and to considering both the motivation to act and the capability to act (Chen, 1996; Smith, Ferrier, & Ndofor, 2001).

As a means of empirically assessing a firm's motivation to engage, or not engage, in competitive activity, scholars often use market commonality (Chang & Xu, 2008), which Chen defined as "the degree of presence that a competitor manifests in the markets it overlaps with the focal firm" (1996: 106). Research on multipoint competition is a subset of the competitive dynamics literature that centers on situations wherein firms compete against each other in two or more markets (e.g., Karnani & Wernerfelt, 1985). The degree of multimarket contact between two firms determines the extent to which they are direct competitors (Boeker, Goodstein, Stephan, & Murmann, 1997). When two firms compete in many markets and, even more importantly, when each is a major participant in markets that are vital to the other, they experience increased market commonality (Chen, Su, & Tsai, 2007). To the extent that market commonality is high, the potential for effective retaliation exists. Thus, high market commonality makes a firm not only highly motivated to refrain from aggression toward a competitor, but also highly motivated to retaliate against any attacks directed its way by that competitor.

When considering making a move, firms examine not only the motivation of various competitors to respond but also their capability of responding (Chen, 1996; Smith et al., 1991). Capability is empirically represented in extant literature by resource similarity, which Chen defined as "the extent to which a given competitor possesses strategic endowments comparable, in terms of both type and amount, to those of the focal firm" (1996: 107). This aspect of competitor analysis is informed by the resource-based view of the firm (Young et al., 2000). Scholars taking a resource-based view describe firms as being composed of unique bundles of assets and capabilities (Barney, 1991). Firms acquire resources over time and develop routines to manage them, so that resource bundles and capabilities are heterogeneously distributed and each firm maintains an idiosyncratic resource profile. A firm's ability to make competitive moves is dependent on, and constrained by, its current resource endowment (Collis, 1991). Consequently, a focal firm will likely be hesitant to target a rival with a resource profile similar to its own (Chang & Xu, 2008).

With the above delineation of footholds and competitor analysis as a foundation, we next develop hypotheses linking the two aspects of competitor analysis (market commonality and resource similarity) and their interaction to two types of foothold moves (attack and withdrawal).

Foothold Attack

A foothold attack occurs when a competitive action such as making an acquisition or beginning a promotional campaign is made via a foothold. The influence of market commonality on motivation could be an important driver of firms' launching of foothold attacks. One of the tenets of competitive dynamics research is that firms are wary of the possibility of competitor retaliation in response to competitive aggression (Hambrick, Cho, & Chen, 1996). The mutual forbearance hypothesis adds that retaliation may manifest over a range of markets in which competitors interact (Gimeno & Woo, 1996; Stephan, Murmann, Boeker, & Goodstein, 2003). For this reason, firms that are close competitors in multiple markets that are vital to each other are motivated to adopt more conservative stances with respect to competitive aggression (Baum & Korn, 1994).

These arguments suggest that a firm holding a foothold will be less motivated to launch an attack from the foothold when any of its competitors in that market possess high market commonality with the focal firm (Chen, 1996). Market commonality in this case is from the perspective of the competitors in the market in which the foothold exists. This is because, when evaluating whether to launch a foothold attack, firms will look at each competitor's market commonality with themselves to determine the likelihood of retaliation (Jayachandran, Gimeno, & Varadarajan, 1999). If none of the competitors have high market commonality, retaliation is less of a threat, and the foothold-owning firm will be less concerned about reactions to an attack. Given this reasoning, we predict that:

Hypothesis 1. Market commonality and the likelihood of foothold attack are inversely related.

In theorizing about foothold moves such as attacks, resource similarity between a firm with a foothold and its nearest rival should be distinguished from the resource superiority of its most

powerful rival (Bergen & Peteraf, 2002). The latter is almost certain to be a predictor of any competitive move, but the former is also an important, and less obvious, predictor (Chen, 1996; Chen et al., 2007). Strategic groups research is one source of support for this notion. Strategic groups are perhaps best defined using resource similarities (e.g., Cool & Schendel, 1987, 1988; Lawless, Bergh, & Wilsted, 1989; Mehra, 1996), and the members of a firm's strategic group are typically the firm's closest rivals (Hunt, 1972). Meanwhile, according to competitor analysis research, firms typically perceive rivals with similar resource profiles as posing a formidable challenge to their operations (Chen, 1996). Resources that are essential for gaining competitive advantage are generally limited, so a firm's ability to compete is determined in part by the extent to which rivals value the same resources as the focal firm (Porac & Thomas, 1990). Two firms that compete head-to-head, therefore, will be more likely to experience competitive intensity when they rely on similar resource structures. Gimeno and Woo's (1996) findings on strategic similarity and competitive rivalry support these arguments.

Given the above arguments, firms that are considering launching foothold attacks are likely to account for the possibility of retaliation by examining competitors' resource profiles vis-à-vis their own (Chen, 1996; Peteraf & Bergen, 2003). To the extent that a competitor's resources overlap with those of a focal firm, the competitor is more capable of implementing an effective response (Young et al., 2000). Therefore, when a competitor that would be affected by foothold attack has strategic endowments similar to the focal firm's, the firm may be reluctant to launch an attack. Conversely, if none of the competitors present a foothold-owning firm with high resource similarity, the firm will be less concerned about retaliation. In sum, we expect that:

Hypothesis 2. Resource similarity and the likelihood of foothold attack are inversely related.

Foothold Withdrawal

A foothold withdrawal occurs when a firm ceases selling products or services in the foothold's market (Chang, 1996). Although we expect high market commonality to motivate firms to refrain from attacking in a foothold market, this does not necessarily suggest that high market commonality also motivates them to withdraw those footholds. A foothold's value is driven in part by its merit as a competitive deterrent in that owning it positions a firm to defend itself if necessary (Karnani & Wernerfelt, 1985). Central to the competitive dynamics literature is the notion that an attack in one market may be met with a counterattack in another market in which the firms compete (Yu & Cannella, 2007). When withdrawing a foothold, a firm decreases the number of positions from which it can launch a competitive response or threaten such a launch (Boeker et al., 1997; McGrath, Chen, & MacMillan, 1998). Maintaining footholds, on the other hand, provides firms with vehicles for swift retaliation (Anand et al., 2009).

Any given foothold is especially valuable as a deterrent in relation to the competitor that has the highest market commonality with the firm that owns the foothold. A focal firm is most vulnerable to rivalrous moves by this competitor; thus, holding a foothold as a hedge against such moves is likely to be seen as useful. Overall, we expect that as a competitor's market commonality with a firm that owns a foothold increases, the focal firm will be motivated to possess the retaliatory potential inherent in the foothold and will thus be unlikely to withdraw the foothold. Given this theorizing, we predict that:

Hypothesis 3. Market commonality and the likelihood of foothold withdrawal are inversely related.

For many firms pondering whether to withdraw a foothold, the ongoing usefulness of the foothold in deterring competitive attacks will be a key consideration (McGrath et al., 1998; Yu, Subramaniam, & Cannella, 2009). When resource similarity between rivals increases, it induces latent strain between them and hastens the breaking point at which strain becomes manifest in rivalrous actions (Chen et al., 2007). These actions typically undermine profitability; thus, firms are likely to take steps to try to prevent such actions and avoid steps that encourage them.

Withdrawing a foothold can encourage rivalrous actions, and as such it is a step that firms facing high resource similarity often want to avoid. Responses to competitive attacks are more likely when such responses do not involve the commitment of substantial new resources and major organizational restructuring (Chen & MacMillan, 1992). The presence of a foothold minimizes the investment and disruption necessary to respond in a particular market. A foothold offers, as Karnani and Wernerfelt (1985: 90) put it, a stick that can be used to punish competitors. The value of this stick is greatest in reference to the competitor that has the highest resource similarity with the firm that owns the foothold. Among its close rivals, this competitor has the greatest ability to harm the focal firm,

making the potential to deter its aggression most important. In contrast, if no competitors have high resource similarity with the focal firm, the foothold has less value as a competitive weapon. This may lead the firm to determine that the costs of maintaining the foothold are not a good investment. Overall, we expect that foothold withdrawal is less likely when resource similarity is high and more likely when resource similarity is low. Stated formally:

Hypothesis 4. Resource similarity and the likelihood of foothold withdrawal are inversely related.

Interactions between Market Commonality and Resource Similarity

Above, we argued that market commonality and resource similarity each have independent, direct effects on the likelihood that firms will make foothold moves. Past research suggests that there could be value in examining their interactive effects. Indeed, Young and colleagues (2000) significantly advanced the literature by uncovering interaction effects between market commonality and resource similarity on the frequency and speed of competitive moves (see also Chen et al., 2007).

In our study, market commonality taps the motivational component of the awareness-motivation-capability perspective, and resource similarity addresses a firm's capability vis-à-vis competitors. From Chen et al. (2007), we adopt the premise that motivation is a prerequisite of competitive action and is a more robust predictor of competitive rivalry than ability. Motivation is, therefore, likely to be a necessary condition for firms to launch a foothold attack; a firm must be motivated to act before it assesses the extent to which it is capable of doing so (Chen & Miller, 1994). When market commonality is high and, therefore, motivation is low because retaliation is highly likely, firms will be less concerned about resource similarity when assessing ther or not to launch a foothold attack. However, when market commonality is low and, therefore, motivation is high, firms become increasingly motivated to consider a foothold attack and more prone to evaluate the likelihood of being subject to retaliation.

Low levels of market commonality, therefore, may prompt firms to consider resource similarity more closely before launching a foothold attack. Most marketplace rivalry is both visible and accessible. As firms enter and exit markets, their moves typically have immediate implications for competitors (Derfus, Maggitti, Grimm, & Smith, 2008). Moreover, information about the changing market presence of competitors is highly accessible and such changes are one of the most readily available means of assessing competition (Baum & Korn, 1999). A firm's resource profile, however, is more idiosyncratic and may be shrouded in ambiguity (Barney, 1991). The resources of competitors are an important determinant of competitive aggressiveness (Park & Zhou, 2005), but assessing resource endowments is difficult because they are less transparent than market interactions. As market commonality decreases, firms increasingly entertain the possibility of launching foothold attacks and perhaps become more pressured to make the more cumbersome assessments of resource similarity. In other words, when motivation is sufficient, firms may devote greater attention to issues of capability. This would suggest that when market commonality is low, resource similarity has a stronger effect on the likelihood that firms will launch a foothold attack.

A body of research from economics and strategic management supports the notion that higher levels of market commonality lead to less vigorous competitive interaction in all markets in which firms engage each other (Baum & Korn, 1996; Evans & Kessides, 1994). This results in more stable and predictable behavior in those markets (Barnett, 1993). In contrast, firms with low market commonality encounter more volatility and competitive intensity in markets in which they meet (Gimeno & Woo, 1996). When uncertainty about competition is high, other ways of predicting a rival's potential for competitive action become more central. Thus, when market commonality is low, firms may look more toward resource similarity as a means of determining whether launching a foothold attack would be prudent. Low market commonality, therefore, could enhance the negative association between resource similarity and the likelihood of foothold attack. Given extant evidence and these arguments, we predict the following:

Hypothesis 5. The interaction between market commonality and resource similarity is positive: when both are low, the likelihood of foothold attack increases.

Scholars have long understood that firms often interact with one another on the basis of considering both market and resource dimensions (e.g., Day, 1981). Building on these ideas, others have suggested that market commonality and resource similarity are closely intertwined (Bergen & Peteraf, 2002; Grimm, Lee, & Smith, 2006). One way they potentially interact can be described from an information processing perspective. According to this

perspective, interpreting information and then acting on those interpretations is central to organizational activity (Daft & Weick, 1984; Egelhoff, 1982). Studies have shown that similar firms tend to make similar interpretations of events and take similar actions based on those interpretations (Meyer, 1982; Thomas & McDaniel, 1990). As firms intersect in more common markets, they have access to greater cross-market information about rivals' behavior and more observable signals about rivals' intent (Basdeo, Smith, Grimm, Rindova, & Derfus, 2006; Boeker et al., 1997). At the same time, resource similarities among rival firms point to similarities in routines and comparable capabilities, suggesting that such firms are prone to interpret information in like ways (Young et al., 2000).

In our research context, greater information is made available to firms when market commonality is high (Stephan et al., 2003). Information about competitors and their moves flows from each market, supplementing the body of knowledge from which firms decide what, if anything, to do with its footholds (Haveman & Nonnemaker, 2000). When market commonality, and its associated information, are high, firms are more likely to engage in mutual forbearance (Jayachandran et al., 1999). They do not withdraw their footholds, because the competitive deterrence that footholds provide facilitates forbearance.

A firm's likelihood of forbearing is dependent, however, not only on the availability of information about competitors, but also on the ability to accurately interpret that information (Golden & Ma, 2003). High levels of resource similarity facilitate accurate information processing between firms, making forbearance more likely. This also prompts firms to not withdraw their footholds, so that they may continue to use them as a means to ensure mutual forbearance. The combined presence of information (from high market commonality) and ability to accurately interpret that information (from high resource similarity) should therefore be associated with fewer foothold withdrawals. The opposite would also hold: when market commonality and resource similarity are both low, firms are less likely to accurately process the relatively low level of competitor information they have. This reduces a foothold's value as a deterrent, making it more likely that a firm will elect to no longer absorb the costs of maintaining the foothold.

In addition, the awareness-motivation-capability perspective may help inform the expected interaction between market commonality and resource similarity (Chen et al., 2007). Evidence suggests that higher market commonality between firms leads them to be more motivated to engage in competitive activity (Jayachandran et al., 1999). Footholds are useful as competitive deterrents in this situation. Prior work has also shown that higher resource similarity between firms suggests that rivals will be more capable of engaging in and responding to competitive actions (Bergen & Peteraf, 2002; Chen, 2009). Here again footholds are likely to be useful as deterrents keeping highly similar rivals at bay. It is the combination, therefore, of low market commonality and low resource similarity that removes both these dimensions (motivation and ability to compete), diminishing the value of a foothold as a deterrent. Under such conditions, firms are likely to view footholds as worth maintaining. Therefore, we predict the following:

Hypothesis 6. The interaction between market commonality and resource similarity is positive; when both are low, the likelihood of foothold withdrawal increases.

METHODS

Sample and Data Sources

We chose a research setting that facilitates investigation of competitor analysis: the U.S. computer-related manufacturing and software industry. We viewed this setting as highly suitable for testing our hypotheses because demand conditions and competitive dimensions (e.g., number of competing firms, competitive activity) vary considerably among its product-markets (cf. Henderson, Miller, & Hambrick, 2006). Product life cycles are on the order of months rather than years (Bayus & Agarwal, 2007), so this context affords the opportunity to examine a critical mass of foothold moves within a reasonably brief sampling window.

Our main source of data for identifying footholds was The NPD Group, a major market research firm that has created a system of categorizing product-markets that are embraced by firms in our focal industry. Many industry executives and market researchers rely on NPD's proprietary data to track the behavior of competitors (Honomichl, 2008). Our sample consisted of all firms that competed during a three-year window, 2004–06,[3] in any of the 139 product-markets that are part of the industry. These included all product-markets in what NPD designates as "computer-related manufacturing" industry (e.g., desktop computers, inkjet printers, network gateways, notebook batteries, PC projectors, removable media drives) and as "software"

[3] NPD was willing to provide three years of data, with 2006 as the latest choice made available to us.

industry (e.g., desktop operating systems, OCR software, point-of-sale software, programming languages, virus detection, word processing).[4] There were a total of 285 footholds at the start of our observation period. Considering this initial set of footholds as a cohort eliminated the financial quarter of establishment as a nuisance variable and ensured that no foothold was less likely than another to experience a move simply because it had been established later in the sampling window.

In analysis of the 285 footholds, we identified 85 foothold attacks and 74 foothold withdrawals during the period of study. These moves occurred after an average of four quarters. Therefore, we collected data quarterly to capture competitive characteristics that were likely to have affected those decisions. In addition, the firms in our sample collectively launched about 11 total foothold attacks and made 9 total foothold withdrawals per quarter. This is a sufficiently low rate of occurrence per time period, relative to the total number of footholds, to allow for the use of continuous-time models when the events were sampled quarterly (Singer & Willet, 2003). Our sampling window included eight quarters: 1Q 2005 through 4Q 2006 (we also collected data for the predictors for the four quarters of 2004 to accommodate the lagged structure of our design).

There is no established means for identifying footholds. We therefore sought to maintain consistency with our conceptual definition: A foothold is a small position that a firm intentionally establishes within a market in which it does not yet compete. This definition suggests at least three conditions for small market shares to be considered footholds. First, we only counted a market position as a foothold if the firm that owned it recorded quarterly sales in a product-market that represented less than 3 percent total market share.[5] Second, we did not consider positions that declined into small market shares to be footholds because they were not intentionally established (Clark & Montgomery, 1998). Third, new positions established in markets that a firm already competed in (such as fighting brands) were not included in our sample.

[4] When the lines of competition were not sufficiently demarcated (e.g., specialty banner paper and specialty greeting paper), we aggregated product-markets, which reduced the number of markets from NPD's 160 to our 139. These aggregations were developed in collaboration with two industry experts.

[5] Given our focus on competitor analysis, we only examined footholds belonging to a firm competing head-to-head with a rival in both the foothold market and at least one other market.

Additional data were gathered from multiple archival sources. Firm-level characteristics were available from Compustat and the Corporate Library. Data on boards of directors came from Riskmetric's Investor Responsibility Research Center (IRRC) database. We found acquisitions within the industry in the Securities Data Company (SDC) Platinum database. Lastly, we identified announcements of new products, price actions, promotional campaigns, and signaling actions from a manual search of LexisNexis.

Measures

Independent variables. We measured *market commonality* as the highest degree of presence that any competitor manifests in markets in which it overlaps with a focal firm (Bergen & Peteraf, 2002; Chen, 1996). We used the competitor with the highest market commonality, rather than an average market commonality among all competitors, because in our theorizing we asserted the competitor with the greatest amount of overlap across markets would drive focal firms' motivation. Calculating this variable required a market-by-market analysis of commonality between any firm that has a foothold and each participant in the foothold markets. We began by creating a matrix of market commonalities between every pair of firms in our sample, calculated as follows (Chen, 1996):

$$M_{ab} = \Sigma[(P_{ai}/P_a) \times (P_{bi}/P_i)],$$

where P_{ai} = sales by firm a in product-market i,

P_a = total sales by firm a,
P_{bi} = sales by firm b in product-market i,
P_i = total sales of all firms in product-market i, and
i = all product-markets in which firms a and b compete.

This operationalization accounts for the notion of competitive asymmetry because M_{ab} is not equal to M_{ba}. We normalized these results so that the sum of the market commonality indexes for all of a given firm's competitors was equal to 1 (Chen, 1996) and repeated the process for all eight quarters of analysis. For a given foothold, we extracted from the matrix the market commonalities between the firm with the foothold and every other firm with sales in that product-market and quarter. Lastly, we took the highest of these scores, which represented the greatest extent of market commonality that any product-market competitor had with the focal firm. Market commonality is thus a firm-market-level

construct because it takes on a value that is unique for a given market in which a focal firm is present.

We measured *resource similarity* as the greatest extent to which any multimarket competitor possessed strategic endowments comparable in type and amount to those of a focal firm (Chen, 1996). We used the competitor with the most similar resources because in our theorizing we posited that a firm makes foothold moves in regard to the most similar rival in the foothold market. Most resources can be categorized under four broad dimensions: financial, physical, social, and human (Sirmon & Hitt, 2003; Sirmon, Hitt, & Ireland, 2007). We tapped each of these dimensions to create a "dimensionalized" measure of each firm's resource portfolio in every quarter during the sampling time frame.

When firms analyze competitors to determine the extent of their resource similarity, they must rely on the information that is available to them. In keeping with this notion, we measured each dimension of resource similarity via publicly available data. Financial slack (current assets/current liabilities) reflects a firm's financial resources (Ferrier, 2001). For physical resources, we used a firm's reported investments in property, plant, and equipment (PP&E); in the computer industry, PP&E represents an important indicator of the kind of investments in specific assets a firm holds (Ziedonis, 2004). A firm's social resources are less tangible and therefore more difficult to measure. To develop a proxy, we relied on the social networking literature, using a measure of the firm's board interlocks (Mizruchi, 1996). A board interlock exists when any director serves on the boards of two firms. More interlocks provide greater access to information, more exposure to emerging opportunities, and relationships that can help a firm manage its resource dependencies (Carpenter & Westphal, 2001). For human resources, we tapped employee productivity by using firm sales divided by total number of employees (Ployhart, Weekley, & Ramsey, 2009). We then transformed the financial, physical, social, and human resource variables to standardized scores for comparison between firms (Zhang & Rajagopalan, 2004).

To calculate resource similarity, we began by creating a matrix of resource distances between every pair of firms in our sample, calculated as the Euclidean distance, D_{ab}, between the resource profiles of the two firms (Hult, Ketchen, Cavusgil, & Calantone, 2006), as follows:

$$D_{ab} = \text{SQRT}[(F_a - F_b)^2 + (P_a - P_b)^2 + (S_a - S_b)^2 + (H_a + H_b)^2],$$

where F_a or F_b = the standardized score of the financial resources of firm a or b,

P_a or P_b = the standardized score of the physical resources of firm a or b,
S_a or S_b = the standardized score of the social resources of firm a or b, and
H_a or H_b = the standardized score of the human resources of firm a or b.

We repeated this process for all eight quarters of analysis. For a given foothold, we extracted from the matrix the resource distances between the firm with the foothold and each other firm with sales in that product-market and quarter. Lastly, we took the smallest of those distances (that is, the distance to the most similar market participant) and reverse-coded to create a similarity score. Like market commonality, resource similarity is therefore a construct measured at the firm-market level.

Dependent variables. Our hypotheses examine two types of moves: foothold attacks and foothold withdrawals. *Foothold attacks* require specific and detectable competitive moves in a foothold's market (cf. Ferrier, Smith, & Grimm, 1999; Smith, Grimm, & Gannon, 1992).[6] In determining what was and was not an attack, we relied on precedents in the competitive dynamics literature (Chen & Miller, 1994; Ferrier, Fhionnloaich, Smith, & Grimm, 2002; Ferrier & Lee, 2002). Accordingly, we considered a firm to have launched a foothold attack when one of the following occurred: announcing a *price action* on products in the foothold market, launching a new *promotional campaign* oriented toward the foothold market, *signaling* the firm's intent to grow its presence in the foothold market, increasing the firm's share of the foothold market via an *acquisition*, or introducing a *new product* in the foothold market.

Following prior research on competitive moves (Derfus et al., 2008; Ferrier et al., 2002), we searched LexisNexis press releases for appropriate keywords to identify potential new product introductions (keywords: "introduce," "launch," "unveil," "rolls out"), price actions (keywords: "price," "rate," "discount," "rebate"), potential new promotional campaigns (keywords: "ads," "spot," "promote," "distribute," "campaign") and signaling actions (keywords: "vows," "promises," "says," "seeks," "aims") for each firm. This process yielded 2,049 articles. Our lead author read each article to

[6] Foothold attacks are intentional moves. A situation in which a foothold grows because of spurious factors, such as competitors leaving the market, is thus not considered a foothold attack. Foothold attacks do, however, include moves that do not result in growth, such as introducing a new product that fails.

discern if it recorded an attack—the first instance of a new product introduction, price action, promotional campaign, or signaling action. To confirm the accuracy of these judgments, an independent rater coded a 10 percent random sample of these articles (as in Derfus et al. [2008]); the intraclass correlation coefficient agreement between raters was 95.8 percent (Shrout & Fleiss, 1979). We also considered a firm to have launched an attack if it acquired another firm in a foothold's market, gathering information about acquisitions from SDC Platinum. This process yielded 531 competitive actions taken by all firms in all markets during the sampling window (i.e., regardless of whether the firm had a foothold or not).

The second dependent variable is *foothold withdrawal*. We considered a firm to have withdrawn a foothold when sales for the foothold's market dropped to zero for two consecutive quarters. Both foothold attack and foothold withdrawal are dichotomous, firm-level variables, although using a single variable with three levels (0 for foothold maintenance, 1 for attack, and 2 for withdrawal) yields the same results.

Control variables. At the firm level, we controlled for *firm size* via the natural log of the firm's total sales (Miller & Chen, 1994) and *firm profitability* via return on assets (ROA). One of our predictors incorporated product announcements and marketing campaigns, but this could be confounded by a firm's *overhead costs* (selling, general and administrative expenses [SG&A] as a percentage of total costs) incurred to coordinate activities across markets. We included an inverse Herfindahl index of markets in which a firm competes to control for product *diversification* (Stimpert & Duhaime, 1997). Because we measured each firm's resource portfolio for four dimensions (financial, physical, social, and human), we included a measure of *resource dispersion* to control for situations in which any one of these dimensions dominated the others.

We controlled for several characteristics of the competitors that firms faced in their foothold markets. Prices tend to fall whenever competitors enter a market, so we controlled for *competitor entry* (*exit*) with a count of the number of competitors that entered (exited) each foothold market during the prior four quarters. We controlled for *competitor aggression* via the total number of actions taken by all competitors (i.e., those with sales in the foothold market) in all markets in which they competed with a focal firm during the prior business quarter. To identify these actions, we used the same approach as for foothold attack, except that the action here did not have to come from a firm with a foothold. Some competitors may be particularly well endowed with strategic resources, so we controlled for *resource superiority* with a measure of the highest standardized combined resource profile, calculated by summing the standard scores across all four resource dimensions.

We also controlled for other conditions unique to a foothold market. *Product life cycle* is the average number of days between new product introductions. Changes in the price of goods sold in a product-market could affect foothold moves, so we controlled for *market price change*, calculated as the increase in average unit price in the quarter before a focal quarter. *Sales trend* was calculated as the slope of the regression of sales for the four quarters prior to a focal quarter (Bloom & Michel, 2002); *dynamism* was the standard error of that regression; product-market *seasonality* was accounted for with effects-coded variables for each business quarter (i.e., spring, summer, winter, fall). We used a Herfindahl index to measure *market concentration* (Saparito, Chen, & Sapienza, 2004), calculated as the sum of the squared market shares of each firm that competed in a given market. Our final market-level control was *irreversibility*. The competitive dynamics literature suggests that the extent to which investments are reversible affects decisions about competitive actions (Chen & MacMillan, 1992). We asked two industry experts to independently code each of the product-markets in terms of irreversibility (1 = "highly reversible," 5 = "highly irreversible"). Raters considered the extent to which reversing course would involve significant commitment of resources, disruption of staff or processes, negotiations with unions or external parties, negative publicity, or institutional bureaucracy (Chen & MacMillan, 1992). ICC agreement between raters was 81.2 percent, which is sufficiently high, and disagreements were resolved by using an average of the two scores (Chen, Fahr, & MacMillan, 1993).

Variable attributes. Our model includes variables at different levels. The independent variables are at the firm-market level. Foothold attack and foothold withdrawal are at the firm level. Firm-level controls include profitability, overhead costs, size, diversification, and resource dispersion. Market-level controls include competitor entry, competitor aggression, resource superiority, price change, sales trend, dynamism, concentration, seasonality, irreversibility, and product life cycle.

Following prior research, in our analyses we had the control and independent variables precede the dependent variables by one time interval (Davis, 1991; Walker, Madsen, & Carini, 2002), with a few exceptions. Sales trend, dynamism, and competitor entry were all calculated over the previous four

quarters. Irreversibility and product life cycle were not lagged because they vary between markets but remain reasonably consistent across quarters. Also, we centered interaction terms before entering them into the model to prevent introducing multicollinearity.

Analysis

We tested our hypotheses using competing risks regression. This analytic approach has been used in other fields, such as sociology and medicine (Kattan, Heller, & Brennan, 2003; Shaw, Shah, Jolly, & Wylie, 2008), but, to the best of our knowledge, had yet to be used in the management field. Competing risks regression is similar to continuous-time event history analysis with partial likelihood estimation and time-varying covariates (Yamaguchi, 1991). The main difference is that event history analyzes the likelihood that a firm in a steady state (in our case, the wait-and-see state of maintaining a foothold) will leave that state (in our case, make a foothold move). The use of event history, however, can be problematic in situations that involve more than one way of leaving the steady state (in our case, by attacking or withdrawing) because it can only accommodate two options: remain in or leave the steady state.

In contrast, competing risks regression uses an event-specific cumulative incidence function (Fine & Gray, 1999). The cumulative incidence function represents the probability that a firm in a steady state (i.e., in the wait-and-see state) will experience a certain event that causes it to leave that state (*either* attack or withdrawal) while accounting for a competing event that could also cause the firm to leave that state (the *alternative* option, either withdrawal or attack).

Competing risks models impose a window of opportunity during which an event can take place, in our case a period of eight quarters, to produce a likelihood score for a particular event. In the case of foothold attack, competing risks regression examines the likelihood that firms will launch an attack from their footholds while taking into account the other two available options (withdrawing the foothold or maintaining it)[7]; event history analysis would simply compare foothold attack with a residual condition we could call "no attack," which would lump together the two very different approaches of withdrawal and waiting-and-seeing. Similarly, in the case of foothold withdrawal, competing risks regression examines the likelihood of foothold withdrawal versus foothold attack or foothold maintenance.

[7] We are focused on intentional foothold attacks. Therefore, when a firm's foothold happens to grow without any externally perceivable attempt at growth (e.g., as a result of the actions of other firms in the market), that observation is excluded from the data.

TABLE 1
Descriptive Statistics and Correlations[a, b]

Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Firm profitability (%)	1.66	5.66																	
2. Size (ln)	6.92	2.49	.34																
3. Overhead costs (%)	35.15	19.70	−.03	−.40															
4. Diversification	0.53	0.26	.01	.04	.01														
5. Competitor aggression	9.32	5.45	.10	.31	−.12	.05													
6. Resource dispersion	1.13	1.39	.09	.50	−.35	.04	.09												
7. Resource superiority	4.09	0.88	.07	.11	−.29	.02	−.12	.03											
8. Market price change (%)	−1.13	18.43	.03	.01	−.01	.02	.02	−.00	.04										
9. Competitor entry	−0.73	2.09	.03	−.06	.02	.08	−.26	−.03	.27	.07									
10. Dynamism	0.09	0.09	.09	.01	.30	.04	−.02	−.14	−.13	−.00	.07								
11. Sales trend	−0.02	0.11	−.01	−.04	−.00	−.07	−.04	−.01	.07	.08	.11	−.07							
12. Market concentration	0.36	0.21	.02	.04	.15	.22	.05	−.06	−.07	.06	.12	.27	−.15						
13. Product life cycle	12.08	3.44	−.02	.04	−.38	.10	.02	.13	.22	.01	−.02	−.31	−.04	−.15					
14. Irreversibility	2.46	1.02	.01	.10	.01	−.02	.04	.09	.02	−.01	−.06	−.11	.05	.07	−.20				
15. Market commonality	0.10	0.07	.00	−.21	.10	−.01	−.14	−.19	−.09	−.00	−.02	.05	.01	−.00	−.03	−.15			
16. Resource similarity	6.21	0.30	−.13	−.26	.21	−.08	−.11	−.20	−.05	−.03	.03	−.00	.00	−.10	−.01	.04	.03		
17. Foothold attack[c]	0.04	0.19	−.02	.00	.06	.02	−.03	−.01	−.06	.06	.02	.03	.06	.07	−.08	.02	−.04	−.06	
18. Foothold withdrawal[c]	0.03	0.18	.01	−.07	.07	−.04	−.08	−.02	.05	−.05	.01	.03	−.05	.03	−.01	−.02	−.04	−.04	−.04

[a] Correlations greater than .05 or less than −.05 are significant at $p < .05$.

[b] The size of the risk set at $t = 0$ was $n = 285$. The total number of firm-year observations was $n = 2{,}250$.

[c] These are dichotomous variables. Expressed as a percentage of total footholds, 3.78 percent launched attacks and 3.29 percent were withdrawn.

RESULTS

Table 1 shows descriptive statistics and correlations for all measures, with the exception of seasonality, which is an effects-coded variable. Covariates in a single model that uphold squared multiple correlations (SMC = 1 – tolerance) below .90 should avoid sensitivity to multicollinearity (Tabachnick & Fidell, 2001). The highest SMC in our analyses was .58, suggesting that multicollinearity was not a problem for any of the models.

Attack

Table 2 reports the results related to foothold attack. We used the "stcrreg" procedure in Stata 11 to conduct our analyses. Model 1 examines the control variables. Market dynamism and resource superiority were negatively and significantly associated with the likelihood of foothold attack, and firm size, market price change, market concentration, and sales trend were positive and significant predictors.

In model 2, we tested three hypotheses. Hypotheses 1 and 2 predict that market commonality and resource similarity, respectively, are negatively related to the likelihood of launching foothold attacks for firms holding footholds. Both were supported ($p < .05$ for Hypothesis 1; $p < .01$ for Hypothesis 2). In model 3, we tested the interaction between market commonalty and resource similarity, which was predicted in Hypothesis 5 to be positive. We first calculated the interaction for each competitor in the market in which a focal foothold existed. To do so, we multiplied market commonality by resource similarity for each competitor in the foothold's product-market and quarter. We then took the greatest of these values. In support of Hypothesis 5, the interaction term was positive and significant ($p < .05$). This indicates that firms are particularly likely to launch foothold attacks when market commonality and resource similarity are both low.

Withdrawal

Model 1 in Table 3 shows that several controls were related to foothold withdrawal. Diversification, competitor aggression, competitor entry, and sales trend were negatively and significantly associated with withdrawal, and overhead costs and resource superiority were positive predictors.

Model 2 shows that, in a sample of firms holding footholds, market commonality was negatively and significantly associated with the likelihood of foot-

TABLE 2
Results of Competing Risks Regression of Foothold Attack[a]

Variables	Model 1	Model 2	Model 3
Firm profitability	−3.37 (1.78)	−3.38 (1.86)	−3.57 (1.89)
Firm size	0.13* (0.06)	0.09 (0.06)	0.10 (0.06)
Overhead costs	0.60 (0.59)	0.76 (0.59)	0.48 (0.60)
Diversification	0.26 (0.45)	0.20 (0.46)	0.25 (0.47)
Competitor aggression	−0.05 (0.03)	−0.07* (0.03)	−0.06* (0.03)
Resource dispersion	0.01 (0.10)	−0.02 (0.11)	0.02 (0.11)
Resource superiority	−0.33** (0.12)	−0.31* (0.12)	−0.29* (0.12)
Market price change	1.01* (0.46)	0.95* (0.46)	0.96* (0.48)
Competitor entry	0.03 (0.06)	0.03 (0.06)	0.03 (0.07)
Dynamism	−2.34* (1.19)	−2.21 (1.17)	−2.17 (1.23)
Sales trend	3.18** (0.94)	3.24*** (0.98)	3.24*** (1.00)
Market concentration	1.35** (0.49)	1.21* (0.51)	1.19* (0.52)
Product life cycle	−0.07 (0.04)	−0.07 (0.04)	−0.07 (0.04)
Irreversibility	−0.02 (0.10)	−0.02 (0.11)	−0.00 (0.11)
Market commonality		−4.20* (2.00)	−6.31** (2.45)
Resource similarity		−0.86** (0.31)	−0.93** (0.32)
Market commonality × resource similarity			5.66* (2.44)
Seasonality	*Included*	*Included*	*Included*
χ^2	75	77	79
df	17	19	20

[a] Standard errors in parentheses.
* $p < .05$
** $p < .01$
*** $p < .001$

TABLE 3
Results of Competing Risks Regression of Foothold Withdrawal[a]

Variables	Model 1		Model 2		Model 3	
Firm profitability	2.40	(1.58)	2.44	(1.70)	1.98	(1.74)
Firm size	−0.08	(0.05)	−0.08	(0.05)	−0.10	(0.05)
Overhead costs	2.05**	(0.76)	2.21**	(0.76)	1.83*	(0.82)
Diversification	−0.96*	(0.41)	−1.03*	(0.42)	−0.98*	(0.43)
Competitor aggression	−0.08*	(0.04)	−0.10**	(0.04)	−0.08*	(0.04)
Resource dispersion	0.07	(0.10)	−0.02	(0.13)	0.04	(0.13)
Resource superiority	0.49**	(0.16)	0.45**	(0.16)	0.48**	(0.17)
Market price change	−0.80	(0.44)	−0.91*	(0.43)	−0.95*	(0.43)
Competitor entry	−0.16*	(0.07)	−0.15*	(0.07)	−0.15*	(0.07)
Dynamism	0.07	(1.20)	−0.30	(1.25)	−0.06	(1.30)
Sales trend	−1.35***	(0.42)	−1.38***	(0.43)	−1.42***	(0.44)
Market concentration	0.78	(0.57)	0.55	(0.58)	0.54	(0.59)
Product life cycle	0.04	(0.04)	0.04	(0.04)	0.04	(0.05)
Irreversibility	−0.10	(0.12)	−0.12	(0.12)	−0.08	(0.12)
Market commonality			−6.51*	(2.72)	−8.88**	(3.23)
Resource similarity			−1.00**	(0.38)	−1.11**	(0.39)
Market commonality × resource similarity					6.27*	(2.86)
Seasonality	*Included*		*Included*		*Included*	
χ^2	90		111		114	
df	17		19		20	

[a] Standard errors in parentheses.
* $p < .05$
** $p < .01$
*** $p < .001$

hold withdrawal ($p < .05$), which lends support to Hypothesis 3. Resource similarity was also negatively and significantly associated with withdrawal ($p < .01$), supporting Hypothesis 4. In model 3, we tested the interaction of market commonalty and resource similarity using the interaction term calculated as described above. This interaction was positively associated with the likelihood of foothold withdrawal ($p < .05$), supporting Hypothesis 6. This suggests that firms are most likely to withdraw their footholds when market commonality and resource similarity are both low.

DISCUSSION

Using data from 285 footholds in the computer-related manufacturing and software industries, we examined foothold attacks and withdrawals. At a general level, our study contributes to theory by extending competitive dynamics theory to advance the scholarly community's understanding of footholds and foothold moves. The competitive dynamics literature has yielded important insights about rivalry, but not every potentially important type of market position has received significant attention. We sought to move the foothold concept out of the shadows and into the limelight.

Contributions

Our specific contribution is examining the implications of competitor analysis (Chen, 1996) for foothold attacks and withdrawals. Our predictions involving the main effects of market commonality and resource similarity on foothold attack and foothold withdrawal were supported, as were our predictions centered on the interactive effects of market commonality and resource similarity. Part of the "value added" of such theorizing and findings is that they confirm the robustness of Chen's (1996) competitor analysis constructs in a new industry context and help explain competitive moves that previously had not been examined empirically.

Another, perhaps more profound, part of our work's value added lies in unveiling and confirming a paradox. Because foothold attacks and foothold withdrawals take footholds in contrary directions, it seems logical to assume that an antecedent that discourages foothold attack also encourages foothold withdrawal. We theorized and found, however, that market commonality, resource similarity, and their interaction are related in the same direction with both the likelihood of foothold attack and foothold withdrawal.

This counterintuitive notion has, we believe, important implications for competitor analysis. Our study helps establish the boundary conditions of key tenets of theory on competitive dynamics; establishing such bounds is an important goal of theory development (Bacharach, 1989). Market commonality and resource similarity emerged here as key predictors of competitive moves. Yet we found that the nature of market commonality and resource similarity's individual and interactive effects among footholds differ from the nature of these effects among other positions investigated in past studies. Specifically, competitor analysis can predict the likelihood that a foothold move will take place, but it cannot predict whether a firm will choose to attack from a foothold or withdraw it. This ambiguity makes it more difficult for a firm to forecast a rival's future strategic direction when that rival has a foothold. The problem will be exacerbated if the rival has multiple footholds, because the rival can conceivably move in a wide variety of unpredictable directions. Firms facing such a rival may be frustrated with their inability to know when or where the rival might strike next. This is consistent with McGrath and colleagues' (1998) notion of a feint, as firms may establish some footholds with a view to fooling competitors into guessing where their next move will occur. Thus, footholds' value as competitive weapons may far exceed their size.

This notion may explain an intriguing aspect of our findings related to market commonality: As market commonality increases, firms are less likely to attack from a foothold, but they are also less likely to withdraw the foothold. Maintaining a foothold involves absorbing costs; thus, it is puzzling that firms do not withdraw footholds that they are unlikely to use to launch competitive attacks. The reason may lie in footholds' inherent value as competitive deterrents. As market commonality increases, firms must be increasingly able to defend their turf against competitor aggression. Indeed, Baum and Korn (1996) found that firms with high multimarket contact are less likely to withdraw from each others' markets, which those authors attributed to such firms being strongly committed to their positions and unwilling to be attacked with impunity. Footholds appear to sometimes offer a means to discourage aggression by competitors, despite the ongoing costs of maintaining the footholds.

The paradox we uncovered offers an important question for future research—if competitor analysis cannot reveal which foothold move will be taken, what theory or concept can reveal this? One possibility is real options theory. Foothold attack and exercising a growth option have some conceptual overlap; foothold withdrawal and exercising an abandonment option appear to overlap as well (cf. Fichman, Keil, & Tiwana, 2005). Real options theory would suggest that the exercise of a growth option is more likely when demand conditions in a market improve, and exercising an abandonment option is more likely when demand conditions in a market deteriorate (Bowman & Hurry, 1993). Thus, building theory about and examining the interactions among real options variables (such as sales trends and market volatility) on the one hand and competitor analysis variables on the other might be a logical next research step.

From a real options perspective, a foothold is established to create options that the firm owning the foothold might exercise in the future. The literature that uses real options theory to examine subsidiary expansion/contraction (Chung, Lee, Beamish, & Isobe, 2010) and serial acquisitions (Xu, Zhou, & Phan, 2010) could provide useful exemplars of how real options might inform foothold moves. For example, real options reasoning could help describe the decisions managers make about a portfolio of footholds, such as when they might choose to grow or shrink that portfolio in an attempt to deal with an uncertain future. Similarly, when a firm holds an array of footholds and launches an attack from one of them, real options theory could help explain its selection from within the available set of choices.

It is tempting to go one step further and view footholds *as* real options, but this would not be accurate. Footholds do not conform to several characteristics that have traditionally been ascribed to real options. Adner and Levinthal noted that "real options investments are characterized by *sequential*, *irreversible* investments made under conditions of *uncertainty*" (2004: 75; emphasis added). First, real options are generally associated with sequential investments over time, whereas footholds represent a one-time investment. Second, the notion of irreversibility is foundational to real options, but footholds may be more or less reversible, depending on the type and amount of investment required to compete in a market. Third, firms often establish footholds in markets that have a high degree of certainty as a means to threaten competitors. Thus, whereas an option has potential value that might be realized if it is exercised, a foothold has inherent value as a competitive deterrent.

To enhance explanation of why footholds are created and what drives foothold moves, scholars might consider how to incorporate other perspectives beyond competitive dynamics and real options theory. Applying institutional theory, for example, would suggest that a foothold attack or a

withdrawal is more likely when a firm has observed firms similar to itself using footholds for attacks or withdrawal (cf. DiMaggio & Powell, 1983). Both social network theory and institutional theory may reveal how footholds evolve over time and how they diffuse throughout organizational networks. Although we believe that our study takes an important step toward bridging the gap between what we know and what we need to know about footholds, fertile opportunities remain for bringing other theories to bear.

Competitive dynamics research could be further enriched through careful examination of those footholds that are maintained over time. In our sample, foothold moves were rare events—the 85 foothold attacks and 74 withdrawals we identified represented just 3.78 and 3.29 percent of the possible moves. Examining rare events is often a great source of knowledge development for scholars and managers alike (e.g., Christianson, Farkas, Sutcliffe, & Weick, 2009), but investigating foothold maintenance as an intentional competitive strategy could be valuable as well. Previous competitive dynamics research by Smith, Grimm, and their colleagues has described a wait-and-see posture used with some market positions (Smith et al., 1991; Young et al., 2000), but inquiry has yet to spotlight maintenance as a strategy. This is unfortunate, because both competitive moves and lack of competitive moves can be theoretically compelling. Indeed, we believe that additional research attention to foothold maintenance in particular and the wait-and-see posture in general could unveil relationships that are not apparent when building knowledge only from the assessment of competitive moves. Issues such as why firms maintain footholds, for how long footholds are maintained, and what the performance implications of foothold maintenance are appear to be ripe for investigation.

Beyond theoretical contributions, our study introduces a new form of analysis, competing risks regression, to competitive dynamics research and to the management literature as a whole. Footholds present a methodological challenge that is inherent to a variety of research streams wherein scholars wish to examine the likelihood that an event will occur (e.g., a foothold attack) in situations in which a different event may instead occur (foothold withdrawal), or no event may occur (Lee, Gerhart, Weller, & Trevor, 2008; Shane & Stuart, 2002). Management researchers often use survival analyses in these scenarios, but this method involves censoring all occurrences other than the focal occurrence, which can erroneously alter the likelihood function (Klein, 2006). We borrowed a methodology that is commonly used in medical research to analyze competing risks data (Berry, Samelson, Ngo, Bordes, Broe, & Kiel, 2008; Kattan et al., 2003). Management researchers might consider applying this analytical approach to areas such as job turnover (subjects may quit, be fired, or continue working), entrepreneurship (firms may receive private funding, go public, or continue without external funding), and internationalization (firms with subsidiaries may expand further, divest, or maintain).

Limitations

Our work has noteworthy limitations that should be acknowledged. Like many investigations of competitive dynamics, our study is limited to one context: the computer-related manufacturing and software industries. Additional research might build on our initial examination of footholds by determining the extent to which our results generalize to foothold decisions involving other types of offerings (e.g., service industries) and to footholds in geographic markets (e.g., used to compete internationally). Also, we could not directly ensure that footholds were "intentionally established," as our definition of footholds specifies, because we did not have enough historical data to identify when and how each foothold arose. We did, however, eliminate slowly declining market share positions, under the assumption that all others were intentionally established.

The time frame of our study was limited by what data The NPD Group provided. Fortunately, eight quarters yielded sufficient data to use competing risks regression in examining foothold moves. Although quarterly sampling appeared to be the best fit to our research context, competitive positions and resource postures could have different effects over longer periods of time, and some of the markets we studied may have had product life cycles that extended beyond our sampling frame. Future studies could leverage longer sampling frames to consider broader research questions about changes in a firms' portfolios of footholds. The nature of our data and research design also precluded us from examining the performance implications of foothold moves. Past research has established the general premise that making competitive moves influences the performance of a firm and its rivals (Derfus et al., 2008), but diagnosing the performance implications of foothold moves, in particular, remains a research opportunity.

Our examination of foothold moves relies on archival data sources and proxies. As a result, we cannot say for certain that managers are actively scanning their environment, comparing their own markets and resources to those of competitors, and drawing con-

clusions about what they will do with their footholds. For that, more exploratory research designs including features such as participant observation are necessary. Such studies may be able to establish a grounded process model to better describe how firms arrive at foothold decisions and how managers at different levels may interact as decisions take shape (Burgelman, 1983). In addition, we were unable to control for the potential costs associated with foothold attacks and withdrawals and for those associated with maintaining footholds. Field research methods such as surveys and interviews could shed light on what these costs are and how they shape decisions about foothold moves. Indeed, archival research such as ours has important advantages (such as the ability to study a large number of footholds over time), but it needs to be augmented by developing an understanding of the processes underlying foothold decisions. For example, whereas our hypotheses centered on the likelihood of foothold moves occurring across our sample, field studies could explain the actions of individual firms.

We considered the extent to which competitor analysis influences foothold moves, but complex underlying competitive phenomena that we did not explore may exist. For example, some footholds could complement others, so that firms attack from some footholds and withdraw others together or in patterns. Scholars could consider the extent to which footholds may be interrelated and how firms may intentionally sequence foothold attacks and withdrawals to signal competitive aggression or forbearance. Consider, for example, a situation in which firm A holds a foothold and firm B intentionally baits firm A by implementing a reversible action that triggers firm A to attempt to grow their foothold. Once firm A has attacked, firm B backs off, potentially leaving firm A in a market that could be unprofitable for them. The literature would benefit from further study of how this kind of competitive interplay and related scenarios may affect foothold moves.

Conclusions

A popular colloquialism is that "good things come in small packages." This colloquialism seems quite appropriate for describing small packages in competitive settings—footholds. A quarter-century ago, Karnani and Wernerfelt (1985) introduced the foothold concept into competitive dynamics research. Footholds attracted little research attention over the ensuing two and a half decades, but our results suggest that footholds have big implications for interfirm rivalry. We hope that our effort to shed new light on footholds and the moves firms make with them will spur further inquiry into this important concept.

REFERENCES

Adner, R., & Levinthal, D. A. 2004. Real options and real tradeoffs. ***Academy of Management Review,*** 29: 120–126.

Anand, J., Mesquita, L. F., & Vassolo, R. S. 2009. The dynamics of multimarket competition in exploration and exploitation activities. ***Academy of Management Journal,*** 52: 802–821.

Bacharach, S. B. 1989. Organizational theories: Some criteria for evaluation. ***Academy of Management Review,*** 14: 496–515.

Barnett, W. P. 1993. Strategic deterrence among multipoint competitors. ***Industrial and Corporate Change,*** 2: 249–278.

Barney, J. B. 1991. Firm resources and sustained competitive advantage. ***Journal of Management,*** 17: 99–120.

Basdeo, D. K., Smith, K. G., Grimm, C. M., Rindova, V. P., Derfus, P. J. 2006. The impact of market actions on firm reputation. ***Strategic Management Journal,*** 27: 1205–1219.

Baum, J. A. C., & Korn, H. J. 1994. The community ecology of large Canadian companies, 1984–1991. ***Revue Canadienne des Sciences de l'Administration,*** 11: 277–295.

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

Baum, J. A. C., & Korn, H. J. 1999. Dynamics of dyadic competitive interaction. ***Strategic Management Journal,*** 20: 251–278.

Bayus, B. L., & Agarwal, R. 2007. The role of pre-entry experience, entry timing, and product technology strategies in explaining firm survival. ***Management Science,*** 53: 1887–1902.

Bergen, M., & Peteraf, M. A. 2002. Competitor identification and competitor analysis: A broad-based managerial approach. ***Managerial and Decision Economics,*** 23: 157–169.

Berry, S. D., Samelson, E. J., Ngo, L., Bordes, M., Broe, K. E., & Kiel, D. P. 2008. Subsequent fracture in nursing home residents with a hip fracture: A competing risks approach. ***Journal of the American Geriatrics Society,*** 56: 1887–1892.

Bloom, M., & Michel, J. G. 2002. The relationships among organizational context, pay dispersion, and managerial turnover. ***Academy of Management Journal,*** 45: 33–44.

Boeker, W., Goodstein, J., Stephan, J., & Murmann, J. P.

1997. Competition in a multimarket environment: The case of market exit. ***Organization Science,*** 8: 126–142.

Bowman, E. H., & Hurry, D. 1993. Strategy through the options lens: An integrated view of resource investments and the incremental-choice process. ***Academy of Management Review,*** 18: 760–783.

Burgelman, R. A. 1983. A model of the interaction of strategic behavior, corporate context, and the concept of strategy. ***Academy of Management Review,*** 8: 61–70.

Carpenter, M. A., & Westphal, J. D. 2001. The strategic context of external network ties: Examining the impact of director appointments on board involvement in strategic decision making. ***Academy of Management Journal,*** 44: 639–660.

Chang, S. J. 1996. An evolutionary perspective on diversification and corporate restructuring: Entry, exit, and economic performance during 1981–89. ***Strategic Management Journal,*** 17: 587–611.

Chang, S. J., & Xu, D. 2008. Spillovers and competition among foreign and local firms in China. ***Strategic Management Journal,*** 29: 495–518.

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

Chen, M.-J. 2009. Competitive dynamics research: An insider's odyssey. ***Asia Pacific Journal of Management,*** 26: 5–25.

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

Chen, M.-J., & MacMillan, I. C. 1992. Nonresponse and delayed response to competitive moves: The roles of competitor dependence and action irreversibility. ***Academy of Management Journal,*** 35: 539–570.

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

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

Christianson, M. K., Farkas, M. T., Sutcliffe, K. M., & Weick, K. E. 2009. Learning through rare events: Significant interruptions at the Baltimore & Ohio Railroad Museum. ***Organization Science,*** 20: 846–860.

Chung, C. C., Lee, S.-H., Beamish, P. W., & Isobe, T. 2010. Subsidiary expansion and contraction during times of economic crisis. ***Journal of International Business Studies,*** 41: 500–516.

Clark, B. H., & Montgomery, D. B. 1998. Deterrence, reputations, and competitive cognition. ***Management Science,*** 44: 62–82.

Collis, D. J. 1991. A resource-based analysis of global competition: The case of the bearings industry. ***Strategic Management Journal,*** 12: 49–68.

Cool, K., & Schendel, D. 1987. Strategic group formation and performance: The case of the U.S. pharmaceutical industry, 1963–1982. ***Management Science,*** 33: 1002–1124.

Cool, K., & Schendel, D. 1988. Performance differences among strategic group members. ***Strategic Management Journal,*** 9: 207–223.

Daft, R. L., & Weick, K. E. 1984. Toward a model of organizations as interpretation systems. ***Academy of Management Review,*** 9: 284–295.

Davis, G. F. 1991. Agents without principles? The spread of the poison pill through the intercorporate network. ***Administrative Science Quarterly,*** 36: 583–613.

Davis, M. S. 1971. That's interesting! Towards a phenomenology of sociology and a sociology of phenomenology. ***Philosophy of the Social Sciences,*** 1: 309–344.

Day, G. S. 1981. Strategic market analysis and definition: An integrated approach. ***Strategic Management Journal,*** 2: 281–299.

Derfus, P. J., Maggitti, P. G., Grimm, C. M., & Smith, K. G. 2008. The Red Queen effect: Competitive actions and firm performance. ***Academy of Management Journal,*** 51: 61–80.

DiMaggio, P. J., & Powell, W. W. 1983. The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. ***American Sociological Review,*** 48: 147–160.

Egelhoff, W. G. 1982. Strategy and structure in multinational corporations: An information-processing approach. ***Administrative Science Quarterly,*** 27: 435–458.

Evans, W. N., & Kessides, I. 1994. Living by the "golden rule": Multimarket contact in the U.S. airline industry. ***Quarterly Journal of Economics,*** 109: 341–366.

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

Ferrier, W. J., Fhionnloaich, C. M., Smith, K. G., & Grimm, C. M. 2002. The impact of performance disasters on aggressive competitive behavior: A reconciliation of conflicting views. ***Managerial and Decision Economics,*** 23: 301–316.

Ferrier, W. J., & Lee, H. 2002. Strategic aggressiveness, variation, and surprise: How the sequential pattern of competitive rivalry influences stock market returns. ***Journal of Managerial Issues,*** 14: 162–180.

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

Fichman, R., Keil, M., Tiwana, A. 2005. Beyond valuation: Real options thinking in IT project management. ***California Management Review,*** 47(2): 74–96.

Fine, J. P., & Gray, R. J. 1999. A proportional hazards model for the subdistribution of a competing risk. ***Journal of the American Statistical Association,*** 94: 496–509.

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

Golden, B. R., & Ma, H. 2003. Mutual forbearance: The role of intrafirm integration and rewards. ***Academy of Management Review,*** 28: 479–493.

Grimm, C. M., Lee, H., & Smith, K. G. 2006. ***Strategy as action: Competitive dynamics and competitive advantage.*** New York: Oxford University Press.

Hambrick, D. C., Cho, T. S., & Chen, M.-J. 1996. The influence of top management team heterogeneity on firms' competitive moves. ***Administrative Science Quarterly,*** 41: 659–684.

Hambrick, D. C., & Fredrickson, J. W. 2005. Are you sure you have a strategy? ***Academy of Management Executive,*** 19(4): 51–62.

Haveman, H. A., & Nonnemaker, L. 2000. Competition in multiple geographic markets: The impact on growth and market entry. ***Administrative Science Quarterly,*** 45: 232–267.

Henderson, A. D., Miller, D., & Hambrick, D. C. 2006. How quickly do CEOs become obsolete? Industry dynamism, CEO tenure, and company performance. ***Strategic Management Journal,*** 27: 447–460.

Honomichl, J. 2008. Business report of the U.S. marketing industry: Top 50. ***Marketing News,*** 42(11): H1–H68.

Hult, G. T. M., Ketchen, D. J., Cavusgil, S. T., & Calantone, R. J. 2006. Knowledge as a strategic resource in supply chains. ***Journal of Operations Management,*** 24: 458–475.

Hunt, M. S. 1972. ***Competition in the major home appliance industry 1960–1970.*** Unpublished Doctoral Dissertation, Harvard University, Cambridge, MA.

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

Karnani, A., & Wernerfelt, B. 1985. Multiple point competition. ***Strategic Management Journal,*** 6: 87–96.

Kattan, M. W., Heller, G., & Brennan, M. F. 2003. Competing risks nomogram for sarcoma-specific death following local recurrence. ***Statistics in Medicine,*** 22: 3515–3525.

Klein, J. P. 2006. Modeling competing risks in cancer studies. ***Statistics in Medicine,*** 25: 1015–1034.

Lawless, M. W., Bergh, D. D., & Wilsted, W. D. 1989. Performance variations among strategic group members: An examination of individual firm capability. ***Journal of Management,*** 15: 649–661.

Lee, T. H., Gerhart, B., Weller, I., & Trevor, C. O. 2008. Understanding voluntary turnover: Path-specific job satisfaction effects and the importance of unsolicited job offers. ***Academy of Management Journal,*** 51: 651–671.

McGrath, R. G., Chen, M.-J., & MacMillan, I. 1998. Multimarket maneuvering in uncertain spheres of influence: Resource diversion strategies. ***Academy of Management Review,*** 23: 724–740.

Mehra, A. 1996. Resource and market based determinants of performance in the U.S. banking industry. ***Strategic Management Journal,*** 17: 307–322.

Meyer, A. D. 1982. Adapting to environmental jolts. ***Administrative Science Quarterly,*** 27: 515–538.

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

Mizruchi, M. S. 1996. What do interlocks do? An analysis, critique, and assessment of research on interlocking directorates. In J. Hagan & K. Cook (Eds.), ***Annual review of sociology,*** vol. 22: 271–298. Palo Alto, CA: Annual Reviews.

Park, S. H., & Zhou, D. 2005. Firm heterogeneity and competitive dynamics in alliance formation. ***Academy of Management Review,*** 30: 531–554.

Peteraf, M. A., & Bergen, M. E. 2003. Scanning dynamic competitive landscapes: A market-based and resource-based framework. ***Strategic Management Journal,*** 24: 1027–1041.

Ployhart, R. E., Weekley, J. A., & Ramsey, J. 2009. The consequences of human resource stocks and flows: A longitudinal examination of unit service orientation and unit effectiveness. ***Academy of Management Journal,*** 52: 996–1015.

Porac, J. F., Thomas, H. 1990. Taxonomic mental models of competitor definition. ***Academy of Management Review,*** 15: 224–240.

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

Saparito, P. A., Chen, C. C., & Sapienza, H. J. 2004. The role of relational trust in bank–small firm relationships. ***Academy of Management Journal,*** 47: 400–410.

Shane, S., & Stuart, T. 2002. Organizational endowments and the performance of university start-ups. ***Management Science,*** 48: 154–170.

Shaw, S. Y., Shah, L., Jolly, A. M., & Wylie, J. L. 2008. Identifying heterogeneity among injection drug users: A cluster analysis approach. ***American Journal of Public Health,*** 98: 1430–1437.

Shrout, P. E., & Fleiss, J. L. 1979. Intraclass correlations: Uses in assessing rater reliability. ***Psychological Bulletin,*** 86: 420–428.

Singer, J. D., & Willet, J. B. 2003. ***Applied longitudinal data analysis: Modeling change and event occurrence.*** New York: Oxford University Press.

Sirmon, D. G., Hitt, M. A., Ireland, R. D. 2007. Managing firm resources in dynamic environments to create value: Looking inside the black box. ***Academy of Management Review,*** 32: 273–292.

Sirmon, D., & Hitt, M. A. 2003. Creating wealth in family business through managing resources. ***Entrepreneurship: Theory & Practice,*** 27: 339–358.

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

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

Smith, K. G., Grimm, C., & Gannon, M. 1992. ***Dynamics of competitive strategy.*** Newbury Park, CA: Sage.

Stephan, J., Murmann, J. P., Boeker, W., & Goodstein, J. 2003. Bringing managers into theories of multimarket competition: CEOs and the determinants of market entry. ***Organization Science,*** 14: 403–421.

Stimpert, J. L., & Duhaime, I. M. 1997. In the eyes of the beholder: Conceptualizations of relatedness held by the managers of large diversified firms. ***Strategic Management Journal,*** 18: 111–125.

Tabachnick, B. G., & Fidell, L. S. 2001. ***Using multivariate statistics.*** Boston: Allyn & Bacon.

Thomas, J. B., & McDaniel, R. R. 1990. Interpreting strategic issues: Effects of strategy and the information-processing structure of top management teams. ***Academy of Management Journal,*** 33: 286–306.

Walker, G., Madsen, T. L., & Carini, G. 2002. How does institutional change affect heterogeneity among firms? ***Strategic Management Journal,*** 23: 89–104.

Xu, D., Zhou, C., & Phan, P. H. 2010. A real options perspective on sequential acquisitions in China. ***Journal of International Business Studies,*** 41: 166–174.

Yamaguchi, K. 1991. ***Event history analysis.*** Newbury Park, CA: Sage.

Young, G., Smith, K. G., Grimm, C. M., & Simon, D. 2000. Multimarket contact and resource dissimilarity: A competitive dynamics perspective. ***Journal of Management,*** 26: 1217–1236.

Yu, T., Cannella, A. A. 2007. Rivalry between multinational enterprises: An event history approach. ***Academy of Management Journal,*** 50: 665–686.

Yu, T., Subramaniam, M., & Cannella, A. A. 2009. Rivalry deterrence and international markets: Contingencies governing the mutual forbearance hypothesis. ***Academy of Management Journal,*** 52: 127–147.

Zhang, Y., & Rajagopalan, N. 2004. When the known devil is better than an unknown god: An empirical study of the antecedents and consequences of relay CEO succession. ***Academy of Management Journal,*** 47: 483–500.

Ziedonis, R. H. 2004. Don't fence me in: Fragmented markets for technology and the patent acquisition strategies of firms. ***Management Science,*** 50: 804–820.

John W. Upson (jupson@westga.edu) is an assistant professor of management at the University of West Georgia. He earned his Ph.D. from Florida State University. His research interests include competitive dynamics, real options, and supply chain management.

David J. Ketchen Jr. (ketchda@auburn.edu) serves as Lowder Eminent Scholar and a professor of management at Auburn University. He earned his Ph.D. from The Pennsylvania State University. His research interests include entrepreneurship and franchising, methodological issues in organizational research, strategic supply chain management, and the determinants of superior organizational performance.

Brian L. Connelly (bconnelly@auburn.edu) is an assistant professor of management and Lowder Research Fellow at Auburn University. He earned his Ph.D. from Texas A&M University. His research interests include corporate governance, competitive dynamics, and international strategy.

Annette L. Ranft (aranft@utk.edu) is Reagan Professor of Management and associate dean for academic programs at The University of Tennessee. She earned her Ph.D. from the University of North Carolina at Chapel Hill. Her research interests are in strategy process, merger and acquisition integration, knowledge-based perspectives, and strategic leadership.