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THE IMPACT OF MARKET ACTIONS ON FIRM REPUTATION

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Drawing on signaling theory, we hypothesize that a firm's reputation is shaped by its own market actions and the actions of its industry rivals. We view market actions as signals that convey information about the underlying competencies of firms and influence stakeholder evaluations of them. We find that the total number of a firm's market actions, the complexity of its action repertoire, the time lag in rivals' responses to its actions, and the similarity of its repertoire with those of its rivals positively affect its reputation. These results suggest that a firm's reputation is influenced both by its own actions and by its rivals' actions. Copyright © 2006 John Wiley & Sons, Ltd.

INTRODUCTION

The importance of a company's reputation as a source of competitive advantage is well established in the strategy literature (e.g., Fombrun and Shanley, 1990; Hall, 1992). Numerous studies have empirically linked firm reputation to its financial performance and social standing (Brown and Perry, 1994; Deephouse, 2000; Fombrun and Shanley, 1990; Fryxell and Wang, 1994; Roberts and Dowling, 2002). While these studies have demonstrated the positive relationship between reputation and performance, less research has focused on how a firm may build a reputation. Several authors have advanced conceptual frameworks that propose how reputations are constructed through market actions (Clark and Montgomery, 1998; Weigelt and Camerer, 1988), patterns of resource flows (Dierickx and Cool, 1989), market signals (Fombrun and Shanley, 1990; Heil and Robertson, 1991), and a combination of resource flows and strategic communications (Fombrun and Rindova, 1998; Rindova and Fombrun, 1999). Although these frameworks emphasize to different extents the role of market actions, investments, and communication in the reputation building process, they tend to agree that reputations form as stakeholders observe the strategic choices and behaviors of firms and draw from these observations inferences about the strategic characteristics and capabilities of these firms. Taken together, these frameworks suggest that reputation formation can be broadly understood as a signaling process, in which the strategic choices of firms send signals to observers and observers use these signals to form impressions of these firms.

In this paper we extend the signaling perspective (Heil and Robertson, 1991; Robertson, Eliashberg, and Rymon, 1995) by theorizing reputation formation as a communication process in which industry context and the actions of rivals influence how the signals of a focal firm affect its reputation. Therefore, we develop and test a theory about how reputation formation is influenced by the characteristics of a firm's market actions over

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time, as well as the by the characteristics of the industry contexts and competitive contexts, within which its actions are observed and interpreted by stakeholders. Thus, in contrast to past research that has studied how observable strategic choices with regard to level of diversification, R&D investment, or marketing expenditure, for example, may serve as signals of unobservable attributes of the firm (Fombrun and Shanley, 1990), we study how more visible market behaviors, such as competitive actions taken in the marketplace to achieve specific competitive goals (e.g., Smith, Grimm and Gannon, 1992), affect a firm's reputation. Consistent with signaling theory, we view the visible market actions of firms as signals that communicate information about the firms' intentions, characteristics, and resources (Weigelt and Camerer, 1988). These signals shape a firm's reputation because they enable stakeholders to form impressions and opinions about its ability to create value for them (Clark and Montgomery, 1998; Rindova and Fombrun, 1999).

Our contribution lies in extending this signaling perspective to account for the effects that industry context and rivals' market actions may have on how stakeholders receive the signals of the focal firm, thereby influencing the focal firm's reputation. In other words, we suggest that a firm's reputation depends not only on its own actions, but also on the actions of its rivals, who must also compete for the attention of stakeholders, and on the industry context in which the market actions takes place (Clark and Montgomery, 1998; Rindova and Fombrun, 1999). Overall, our study contributes to reputation research a more comprehensive view of the signaling process through which reputations form by accounting for the effects of three factors that influence the formation of firms' reputations: (1) the pattern and characteristics of a firm's market actions; (2) the characteristics of its competitors' market actions; and (3) the characteristics of the industry within which the actions of the firm and its competitors are observed and interpreted by stakeholders (Heil and Robertson, 1991; Robertson *et al*., 1995).

MARKET ACTIONS AND REPUTATION FORMATION

Weigelt and Camerer define the reputation of a firm as 'a set of attributes ascribed to a firm, inferred from the firm's past actions' (Weigelt and Camerer, 1988: 443). A firm's reputation therefore reflects stakeholder impressions of the firm's disposition to behave in a certain manner (Clark and Montgomery, 1998), incorporating information about how a firm compares to its competitors (Rao, 1994). Favorable stakeholder impressions are valuable to firms because they increase stakeholders' willingness to exchange resources with them (Hall, 1992; Rindova and Fombrun, 1999). Favorable reputations allow firms to increase prices to consumers (e.g., Kihlstrom and Riordan, 1984), provide a cushion for firms to recover from crises (Gregory, 1998), create mobility barriers within an industry (Wilson, 1985), and have other direct and indirect effects on firms' profitability (e.g., Black, Carnes, and Richardson, 2000; Roberts and Dowling, 2002).

Recognizing that a reputation can be a key strategic resource to a firm gives rise to a fundamental question: how do firms build a favorable reputation? Game theorists who study competitive interactions among firms offer formal models of reputation building that link certain market actions to firm reputation (Weigelt and Camerer, 1988). For example, a firm that undertakes a series of price cuts and moves aggressively to expand capacity leads market participants and rivals to conclude that it will defend vigorously its competitive position in the future. Over time, such a firm will develop a reputation as a 'tough competitor.' Thus, the market actions of a firm convey signals that may provide important information about its strategic goals and intent and over time enable observers to form beliefs and expectations about the future behaviors of the firm. Clark and Montgomery (1998) employed this signaling perspective empirically in a game simulation to examine how the actions of a firm influence the perceptions of market participants as to its capabilities as a competitor. Their study provides empirical support for the argument that the market actions of a firm serve as signals that shape its reputations; in addition, it shows that the pattern of these actions, in terms of how consistent they were over time, also affected the firm's reputation. Overall, while the idea that a firm's reputation is a result of its market actions is fundamental to game-theoretic models, there have been limited efforts to study how the actual real behaviors of firms in markets may affect their reputations.

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We address this limitation in prior research by developing initial theory to explain how the patterns of market actions of a focal firm, as well as of its competitors, affect its reputation. Viewing reputation as an intangible asset depending on 'the interpretations of multiple constituents about how firms create value in an industry' (Rindova and Fombrun, 1999: 705), we propose that reputations form through a collective process of information exchanges among stakeholders about the focal firm based on its market actions. The actions of the focal firm 'emanate' a variety of signals to be 'received' by various stakeholders (Smith and Grimm, 1991). Even if stakeholders do not 'observe' these signals directly, they receive information about them through interpersonal networks or through information intermediaries, such as the media (Pollock and Rindova, 2003). Thus, directly or indirectly, stakeholders participate in discourse and information exchanges, in which they receive information related to the market actions of firms and form impressions and/or make inferences about them (Clark and Montgomery, 1998; Fombrun and Shanley, 1990). Based on these impressions and inferences, stakeholders then make decisions as to the extent that they are willing to exchange resources with a particular firm—which ultimately affects the firm's performance (Rindova and Fombrun, 1999).

We further theorize that a firm's market actions provide visible signals upon which stakeholders form impressions and inferences about the firm. Market actions are externally directed resource deployments that serve to affect the firm's reputation because they convey information about three fundamental aspects of the firm's strategy: strategic intent, strategic skills and capabilities, and market position. First, market actions provide 'a direct or indirect indication of its intentions, motives, goals, or internal situation' (Porter, 1980: 75). Therefore, a firm's market actions enable stakeholders and rivals to make inferences about a firm's intentions, including its commitment to product quality (e.g., Kihlstrom and Riordan, 1984), pricing initiatives (e.g., Kreps and Wilson, 1982), and competitive aggressiveness (e.g., Clark and Montgomery, 1998; Chen, Smith, and Grimm, 1992). Second, market actions provide information that can indicate the development of the firm's skills, routines, and knowledge necessary to undertake and implement these actions. In other words, market actions enable stakeholders to infer the presence of certain capabilities within a firm, because such underlying capabilities can be considered necessary for a firm to undertake a given type of action or a pattern of actions (Grimm and Smith, 1997). Third, market actions reveal information about the competitive or market position of a firm, because a firm's pattern of market actions has been found to influence its ability to claim and defend its competitive position (Ferrier, Smith, and Grimm, 1999; Grimm, Lee and Smith, 2005). Through market actions, firms deter the actions of rivals (Clark and Montgomery, 1998), thereby protecting favorable industry positions (Milgrom and Roberts, 1982). Overall, we believe a firm's market actions can inform stakeholders about the firm's ability to create value for them and are likely to influence their impressions of the firm.

To summarize, we theorize that a firm's actions provide visible signals upon which stakeholders infer various characteristics of the firm. In aggregate, these inferences determine the reputation of the firm. Market actions are therefore a key mechanism by which a firm can build its reputation. We turn next to a discussion of the attributes of market actions that may enhance a firm's reputation.

EFFECTS OF THE FOCAL FIRM'S MARKET ACTIONS

Research on competitive dynamics has shown that the total amount or level of a firm's market actions, rather than any particular type of action, is the most robust predictor of its performance (Young, Smith, and Grimm, 1996). This finding can be explained by the fact that firms possess heterogeneous resources, which they can deploy in different types of actions to create value for stakeholders (Barney, 1991). Given that different types of actions can be used to create value for stakeholders, and that each action has the potential to do so, it is not surprising that past research finds that the totality of a firm's actions determines its performance (Young *et al.*, 1996). Similarly, we expect that the totality of a firm's actions will inform stakeholders about its ability to create value for them because the more actions a firm takes, the more information about it becomes available to stakeholders. The more information stakeholders have, the easier it is for them to form impressions about a firm and better able they are to understand

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the firm's strategy (Smith and Grimm, 1991). As a result, stakeholders are likely to become more confident about making choices to exchange resources with the firm and are likely to evaluate it more positively. For example, research shows that availability of information reduces the perceived riskiness of an activity (Heath and Tversky, 1991) and that simple familiarity leads to choices that favor the familiar firms (Pollock and Rindova, 2003). Together these arguments suggest that there is a positive relationship between a firm's level of actions and its reputation. Therefore, we propose the following hypothesis:

Hypothesis 1: The total number of market actions a firm takes will have a positive effect on its reputation.

In addition to the total number of actions a firm takes, the marketplace advantages it is able to achieve may depend on the diversity of its actions. Firms that take more diverse actions may achieve superior performance because diverse actions enable them to generate more diverse advantages, which may be more difficult for competitors to imitate and compete away. Consistent with this argument, competitive dynamics research shows that a firm's performance is affected by the diversity of actions it takes in a given year (Ferrier *et al*., 1999). The diversity of types of actions that a firm takes defines its 'action repertoire complexity,' which differs from firm complexity (Miller and Chen, 1996) or product line complexity.[1] Complex, diversified firms, such as Phillip Morris, can have relatively simple action repertoires, if they rely predominantly on one type of market action, e.g., advertising campaigns, as the basis of their competitive advantage; and simple, single-business firms like Starbucks can have complex action repertoires, if they use diverse types of actions, such as product innovation, advertising, and co-branding, to pursue competitive advantage. Complex action repertoires provide stakeholders with more information about the underlying capabilities and resources of a firm because more complex action repertoires require stronger capabilities to execute. Researchers have argued, for example, that the positive relationship between action repertoire complexity and firm performance reflects a more experienced top management team (Miller and Chen, 1996) as well as the broader range of capabilities required for taking more varied actions (Ferrier *et al*., 1999). Complex action repertoires may also signal strategic flexibility or the ability to learn and respond to diverse opportunities (Rindova and Kotha, 2001). Overall, competitive dynamics research provides evidence that firms that carry out more complex repertoires of actions have higher performance than those that carry out more simple action repertoires (Ferrier *et al*., 1999; Miller and Chen, 1996). Therefore, firms that take more complex sets of actions may enable stakeholders to infer these firms' greater abilities to create value. Based on these arguments we propose that:

Hypothesis 2: The complexity of the action repertoire of a firm will have a positive effect on its reputation.

EFFECTS OF INDUSTRY CONTEXT

The foregoing discussion argues that because market actions provide information about a firm's strategic goals, underlying capabilities, and competitive market positions, they enable stakeholders to draw inferences about the firm and contribute to shaping its reputation. Viewing this signaling process from a broader communication perspective, however, suggests that the context within which these signals are emitted and received is likely to influence their interpretation. In particular, industry concentration, which describes the number of firms competing in an industry and their relative market presence, may be an important structural characteristic that influences firms' reputations both directly and indirectly.

Within the structure–conduct–performance paradigm of industrial organization (IO) economics, industry concentration has been identified as a key structural characteristic of an industry that

[1] Firm complexity describes the diversity of business lines and/or product markets of a firm. Firm complexity may create difficulty for stakeholders to comprehend the firm's operations or may raise doubts about the coherence of the firm's strategy, leading to negative evaluations and less favorable reputations. Fombrun and Shanley (1990), for example, find a negative relationship between degree of diversification and firm reputation. In contrast, action repertoire complexity describes the diversity of competitive actions and moves that a firm employs in its pursuit of competitive advantage over its rivals.

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affects the nature of the interactions among rivals in the industry (Scherer and Ross, 1990; Waldman and Jensen, 2001). Highly concentrated industries are characterized by relatively few large players holding significant shares of the total market. The actions they take have significant impacts on each other and the market as a whole (Bain, 1959; Scherer and Ross, 1990). As a result, these players tend to closely monitor and frequently respond to each other's actions (Ferrier *et al.*, 1999). In contrast, industries with lower levels of concentration are characterized by a greater number of firms with small market shares. The actions that each firm takes in such industries have a more limited impact on its rivals and the market as a whole.

IO economics researchers have amassed considerable evidence that industry concentration affects firm performance by influencing competitors' cost structures and pricing levels. This perspective therefore suggests that industry concentration influences the reputations of competing firms directly.[2] In contrast, less research attention has been directed to how industry concentration influences the communication context within which stakeholders observe and comprehend the signals of competing firms. More specifically, industry concentration may have indirect effects on the formation of firms' reputations by moderating the relationship between their market actions and their reputations. Below we develop theoretical arguments about how industry concentration may affect the communication context between competing firms and their stakeholders.

First, industry concentration reflects the total number of firms competing for stakeholder attention. A greater number of industry rivals generate a larger number of signals competing for the attention of stakeholders. Because of limited information-processing capacity (Simon, 1955), stakeholders are more likely to successfully attend to the signals of a small number of competitors, as is the case in more concentrated industries (Rindova, Becerra, and Contardo, 2004). In less concentrated industries, the preponderance of signals from a relatively larger number of sources may create 'noise' in which it becomes difficult for stakeholders to focus their attention on the signals of any one firm. As a result, the effectiveness of a firm's actions to signal information concerning the firm may be limited in less concentrated industries, reducing a firm's ability to cultivate the stakeholder opinion necessary for building a reputation.

Second, the expected impact of a given action, and therefore its importance for future exchanges between a firm and stakeholders, may also depend on industry concentration. In more concentrated industries, the actions of a few large players have high information value for stakeholders because each action is likely to have a significant impact on the industry's competitors, the conditions of supply and demand, and the ways in which firms create value in the industry (Heil and Robertson, 1991; Porter, 1980; Scherer, 1980; Scherer and Ross, 1990). In contrast, in less concentrated industries, each action is expected to have a limited effect on the industry, and therefore less informational value for stakeholders seeking to predict the nature of their future exchanges with industry competitors (Heil and Robertson, 1991; Porter, 1980; Scherer, 1980; Scherer and Ross, 1990). Thus, in concentrated industries the actions of the key competitors are likely to be more visible and to have higher information value than the actions of firms in less concentrated industries.

Overall, we expect that industry concentration will moderate the effects of a firm's market actions on its reputation, such that this relationship will be stronger in more concentrated industries.

> *Hypothesis 3a: The positive relationship between the total number of a firm's actions and reputation will be stronger for firms in industries with higher levels of concentration.*

The potential effect of industry concentration as defining the context within which the signals emitted by firms' actions are received and interpreted may be particularly important for the relationship between a firm's repertoire complexity and its reputation. Interpreting the information content

[2] For example, IO economics research has established that industry concentration can affect the performance of firms in the industry by influencing factors such as economies of scale and the levels of collusion. Such differences in industry structure are likely to lead to performance differentials, which in turn are likely to influence the reputations of firms in these industries. These direct effects of industry concentration on competitors' performance are well understood (e.g., McGahan and Porter, 1997; Ravenscraft, 1983; Scherer and Ross, 1990) and we account for them in our model by controlling for the direct effects of industry concentration on reputation. We focus our theoretical discussion on the effects of industry concentration as a context, within which the actions of competing firms are observed and interpreted, because these effects have not been theorized and studied by past research.

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of complex repertoires is difficult and may require that greater levels of stakeholder attention be directed toward the focal firm for this signal to influence their impressions and opinions of the firm. In an industry with a large number of competitors, jockeying for position *vis-à-vis* industry stakeholders, the signals of competitors are likely to generate a noisy background against which it will be more challenging for stakeholders to interpret and understand the complex repertoire of the focal firm. Therefore, we expect that:

Hypothesis 3b: The positive relationship between a firm's repertoire complexity and reputation will be stronger for firms in industries with higher levels of concentration.

EFFECTS OF RIVALS' ACTIONS

While industry concentration may influence the extent to which the market actions of a focal firm are noticed and the ease with which they are interpreted by stakeholders, the actions of its rivals may influence the impressions that stakeholders form of the focal firm. Rivals' actions may have direct effects on a focal firm's reputation because they also are market signals that compete for the same stakeholder attention and favorable interpretations. We theorize that rivals' actions affect the reputation of a focal firm because they may divert stakeholder attention from it and may change the information value of its actions. In our view, rivals' actions can be conceptualized as having both substitutive effects and complementor effects on a firm's reputation (Brandenburger and Nalebuff, 1996) because some of their characteristics may reduce the information value of a firm's actions, while others may provide stakeholders with additional information that is relevant to the inferences that stakeholders may draw about the focal firm. Drawing on the idea that firms competing in the same industry are 'substitutors' when their coexistence and activities reduce their relative value-added, and 'complementors' to each other when their coexistence and activities increase their value-added (Brandenburger and Nalebuff, 1996), we define rivals' actions as having 'substitutive effects' on a firm's reputation when these actions reduce the likelihood that stakeholders will make favorable inferences about the focal firm's actions because these rivals' actions reduce the information value of the focal firm's actions. In contrast, rival actions will have 'complementor effects' when they increase the likelihood that stakeholders will make favorable inferences about the focal firm because these rivals' actions increase the information value of the focal firm's actions.

Substitutive effects arise from competition between industry rivals for the limited attention and resources of stakeholders. For example, research in competitive dynamics has shown that rival actions have a negative effect on a focal firm's performance (e.g., Young *et al*., 1996). In a similar vein, we suggest that the total number of rival actions in the industry is likely to have a negative effect on the reputation of the focal firm. For one, rival actions may divert stakeholder attention away from the focal firm and interfere with the signals that it sends to the market. For another, rival actions also convey information about the relative competitive situation of the focal firm, if they are seen as increasing the cost of the resources necessary to effectively compete in the industry. Stakeholders may then infer that it is increasingly costly for the focal firm to take actions to defend or improve its position in the industry. Such perceptions are also likely to call into question a focal firm's ability to sustain its level of competitive activity, suggesting a negative overall effect on the firm's reputation. The complexity of rivals' action repertoires is also likely to influence the amount of attention that stakeholders allocate to the focal firm and the way they assess the focal firm's ability to create value. When rivals employ complex action repertoires (i.e., they take actions of greater variety than the focal firm), they generate a greater variety of information to be attended to by stakeholders. Given that stakeholders are cognitively constrained, they will have capacity to attend to and comprehend the actions of the focal firm, if its rivals are taking very diverse actions. Because they pose additional demands on stakeholders' attention and comprehension and reduce their ability to attend to and follow the complexity of the focal firm's action repertoire, the complexity of its rivals' action repertoires will have a negative effect on the focal firm's reputation. Together these arguments suggest that both the total number of rival actions and the rivals' repertoire complexity will have negative effects on a focal firm's reputation. Stated more formally:

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Hypothesis 4a: The total number of rival market actions will have a negative effect on the focal firm's reputation.

HypothesiS 4b: The complexity of rivals' repertoires of market actions will have a negative effect on the focal firm's reputation.

The 'complementor effects' of rival actions on a focal firm's reputation arise from the fact that rival actions can provide stakeholders with additional information about the value of a focal firm's actions. As a result, stakeholders may be able to draw additional inferences about the focal firm that they could not have drawn based on the actions of the focal firm alone. We propose that two characteristics of the pattern of market actions rivals can enhance stakeholders' perception of the value of the focal firm's actions. First, the lag between an action of the focal firm and the subsequent actions of its rivals may serve as a signal of the degree to which rivals can counter the focal firm's actions. Second, the similarity in the action repertoires of a focal firm and its rivals may serve as a signal of the legitimacy of the focal firm's actions. We discuss each of these effects next.

Competitive dynamics research has shown that the amount of time that elapses between the action of a focal firm and a subsequent action of a rival, known as a 'response lag', is positively related to the performance of the focal firm (Ferrier *et al*., 1999; Lee *et al*., 2000). The speed with which a firm undertakes new actions is a measure of aggressiveness and proactive behavior and rapid response timing enables a firm to improve performance relative to rivals (Chen and MacMillan, 1992; D'Aveni, 1994).[3]

Because each action a competing firm takes has the potential to generate marketplace benefits for it (Grimm *et al*., 2005), taking an action may lead to a favorable change in the relative performance of the firm and its competitors. If the firm taking an action is a market leader, the performance differential between it and its followers may increase; if it is a follower, the performance differential between it and the leader may decrease. These potential changes in performance differentials are reduced or offset when a competing firm takes a market action of its own. It is therefore costly for any given firm not to act if its rivals are taking actions. The lags between the actions of the focal firm and the actions of its rival provide stakeholders with information about the expected duration of the benefits the focal firm will obtain from its actions. Longer lags enable a firm to benefit from its market actions for a longer time. They also keep the firm in the focus of stakeholder attention until a rival's action 'calls' for their attention. Finally, longer lags may also convey information that the actions of a focal firm are innovative or difficult to imitate (Chen *et al*., 1992); and that the focal firm possesses potentially unique resources which facilitate creation of value. Longer lags by competitors therefore provide an indication of the focal firm's competitive strength and may positively contribute to its reputation. Therefore, we hypothesize that:

Hypothesis 5: The lag between a focal firm's market actions and the actions of its rivals has a positive effect on the focal firm's reputation.

Finally, rivals' actions may influence the reputation of the focal firm by conveying information about the legitimacy of its actions. Legitimacy refers to the degree to which an organization's actions are considered consistent with existing institutional logics, norms, and beliefs (Suchman, 1995). Firms are perceived as more legitimate when their actions conform to industry norms and are therefore similar to those of other firms in the industry (Meyer and Rowan, 1977; DiMaggio and Powell, 1983). Thus, although firms strive to be different from their competitors because such differences enable them to gain competitive advantage (Young *et al*., 1996), they also need to ensure that they are sufficiently similar because the similarity ensures that their actions are perceived as legitimate (Deephouse, 1999).

The similarity of rivals' action repertoires to that of the focal firm are likely to have a complementor effect on the focal firm's reputation because they afford stakeholders the possibility to assess the legitimacy of a firm's actions. Perceived legitimacy of actions is likely to affect positively a firm's reputation because at one level legitimate actions are more comprehensible and enable stakeholders to understand and assess the strategy and the characteristics of the firm more readily (Suchman, 1995). Better understanding of the firm's

[3] In this sense, a subsequent market action by a competitor can be viewed as a 'response' and the time lag between the two as a 'response lag' irrespective of whether a firm takes an action with an intention to 'respond' to a rival or not.

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strategy increases its predictability to stakeholders, and predictability is positively related to a firm's reputation (Weigelt and Camerer, 1988). At another level, legitimate actions are likely to be seen as more appropriate and therefore are likely to be associated with positive performance expectations. As Suchman (1995: 575) argues, legitimate organizations are perceived 'not only as more worthy, but also as more meaningful, more predictable, and more trustworthy.' Therefore, we expect that the similarity of rivals' actions to those of the focal firm will increase the perceived legitimacy of the latter and will have a positive effect on the focal firm's reputation. We therefore predict that:

Hypothesis 6: The similarity between a focal firm's repertoire of market actions and the repertoire of its rivals will have a positive effect on its reputation.

METHOD

Sample and data

To test our hypotheses we measured firm reputation, focal firm market actions, rival market actions, and industry context. Further, we measured these variables over time so that we could make causal inferences about the relationship between actions and reputation. Thus, the starting point for our sample selection was *Fortune*'s 'America's Most Admired Corporations' (FMAC) survey, which is the most commonly used measure of corporate reputation in current strategy and organizational research (Brown and Perry, 1994; Fombrun and Shanley, 1990; Fombrun and Rindova, 1998; Fryxell and Wang, 1994). From the list of industries within which *Fortune* rates firms, we selected industries consisting of firms that are predominantly *public*, had distinct *single-business entities* competing in the industry, and were *focused on the U.S. market*. Further, to ensure that we capture the majority of the interactions among rivals in each industry, we selected the industries for which *Fortune*-rated firms *represented at least 70 percent of industry sales.* These criteria ensured that we were able to track both the market actions of a focal firm, as well as the actions of its closest rivals within a specific industry and geographic market, and to relate those actions to the firm's reputation within the industry. Applying these criteria resulted in a sample of 215 firm-year observations based on 37 firms competing over a 7-year period in 10 industries that spanned manufacturing, services, and retailing. More specifically, the industries included in the study are: appliance manufacturing, athletic footwear manufacturing, automobile manufacturing, brewing, general retailing, office supplies retailing, lumber and hardware retailing, long-distance telephone services, steel manufacturing, and grocery retailing.

We compared the firms in our sample to the remaining firms in the *Fortune* survey in terms of total assets and net sales using independent samples t-tests. There was no significant difference between our sample and the FMAC firms in terms of total assets as a measure of size. However, there was a significant difference (<0.05) between the two samples in net sales, suggesting that our sample consists of somewhat larger firms, which is not surprising given our sampling criterion requiring that the firms in our sample shared with their rivals at least 70 percent of industry sales. We control for the effects of net sales (our *market presence* variable) on a firm's reputation in our analysis.

Dependent variable

Company reputation

Data on company reputation were obtained from *Fortune* magazine's survey of 'America's Most Admired Corporations.' Typically published in March of each year, this survey is conducted in the prior year by asking approximately 10,000 executives, directors, and securities analysts to rate the companies in their own industries based on eight criteria: innovation, financial soundness, employee talent, use of corporate assets, long-term investment value, social responsibility, quality of management, and quality of products and services (for an overview of *Fortune*'s survey methodology see Roberts and Dowling, 2002). As a measure of firm reputation, we used each company's average rating across the eight attributes measured by the *Fortune* survey. While *Fortune* publishes both ratings of the firms and their relative ranks, we used only the ratings because we are concerned with the reputational score of each firm, rather than with its relative standing.

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Independent variables

Market actions

Consistent with our research question regarding the effect of market actions on firm reputation, we focused on actions observable to customers, competitors, and other industry watchers. Since such actions tend to be reported in the business press (Miller and Chen, 1994), past research has captured such observable firm actions through 'structured content analysis' of newspaper and trade magazine articles (Ferrier *et al*., 1999; Miller and Chen, 1994; Smith, Grimm and Gannon, 1991; Young *et al*., 1996). The structured content analysis was conducted through coding of actions into categories on the basis of a series of keywords and decision rules. Action types and keywords were selected to describe general business activities common to all industries. These keywords were used, in combination with the firm names and sample years, to search the *Lexis-Nexis* database and identify articles containing possible firm activity. Each competitive action was coded in eight mutually exclusive activity categories used in extant research on competitive dynamics (Ferrier *et al*., 1999; Smith, Grimm and Gannon, 1991; Young *et al*., 1996): pricing actions, marketing actions, product announcements, new product introductions, capacity and distribution actions, legal actions, agreements, and licensing activities.

The *total number of a firm's actions* was calculated as a sum of the actions in each action type category for each company in a given year to obtain the measure for each firm-year. Similarly, *total rival market actions* were calculated by aggregating total actions for rival firms within the industry for each firm-year.

Repertoire complexity

Following extant research on competitive dynamics this variable was operationalized using a Herfindahl action concentration index (Ferrier *et al*., 1999; Miller and Chen, 1996), and was calculated as follows:

$$1 - \sum_{a} (N_a/NT)^2$$

where N_a/NT is the share or proportion of market actions in the ath action category. A higher score on this measure indicates greater complexity in an action repertoire. Measures for both firm and rival repertoire complexity utilized this formula, with the measure for rivals' repertoire complexity aggregating within action types for all rivals in the industry.

Rival action time lag

This measure reflects the average length of time it took rivals to take an action following an action taken by the focal firm. It was calculated by determining the number of days between each firm action and the first rival action, and then averaging these scores for each firm for each year.

Repertoire similarity

This variable was operationalized as the difference between the proportion of actions of a given type for the focal firm and for its rivals. The measure was calculated as follows:

$$2 - \sum_{a} [(F_a/FT) - (R_a/RT)]^2$$

where F_a/FT is the share or proportion of firm market actions in the ath action category and R_a/RT is the share or proportion of rival market actions in the ath action category. A higher score on this measure indicates greater similarity in the action repertoire of the firm with that of its rivals.

Industry concentration

Concentration was measured using the aggregate market share for the four largest firms in each industry, a common measure of industry concentration in the IO economics literature (Scherer and Ross, 1990). We use industry concentration in two ways in our models: (1) as a moderating variable in models testing for the effects of context on the relationships between the focal firm's actions and reputation; and (2) as a control variable in all models to control for well established by past research direct effects of industry concentration on firm performance, and therefore, reputation (Waldman and Jensen, 2001).

Return on assets

As the most commonly used measure of firm reputation, the *Fortune* reputation ratings have been often evaluated for their reliance on the financial performance of firms (Fombrun and Shanley, 1990; Fryxell and Wang, 1994; Roberts and Dowling,

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2002). Researchers have recommended controlling for the 'halo' effect of financial performance (Brown and Perry, 1994; Fryxell and Wang, 1994). To control for this 'halo' effect, we implemented the procedure outlined by Roberts and Dowling (2002). Specifically, successive lags of firm *return on assets* (ROA) were utilized to control for the possible influence of past financial performance on firm reputation. We found that up to two lags of ROA exhibited significant relationships with firm reputation, and therefore used ROA_{t-1} and ROA_{t-2} as controls.

Market presence was also used as a control variable because firms with larger sales have greater market presence and receive greater levels of public attention, which may result in better reputations (Shamsie, 2003). Market presence was measured using the natural logarithm of sales.

Table 1 provides both descriptive statistics and Pearson correlation coefficients for these variables. The relatively high correlation between firm total actions and firm repertoire complexity suggests that multicollinearity may be an issue. However, given the theoretical arguments we developed about the effects of these variables, it would be inappropriate to assume that these variables were redundant. Calculation of variance inflation factors resulted in values that did not exceed 2.41, which are well below the commonly accepted cut-off of 10. In addition, the fixed-effects model specifications we use further reduce multicollinearity, as the firm-specific fixed effects are eliminated.

Analysis

Given that our dataset is composed of unbalanced panel data, ordinary least squares (OLS) regression can result in biased estimates due to unobserved heterogeneity (e.g., Bowen and Wiersema, 1999). A related issue is the possibility that both a firm's reputation and its action characteristic variables are correlated with some unobserved firm-specific attributes. Therefore, we use fixed-effects models to control for idiosyncratic effects associated with each company in our sample. Essentially, using a fixed-effects specification estimates only within-firm variation over time, assuming that the effects of the independent variables are the same across all firms, while allowing for variation due to firm heterogeneity. This is consistent with Dierickx and Cool's (1989) argument that reputations are accumulated through complex processes and, therefore, it may be possible to identify some of the relevant variables contributing to firm reputation, but an exact specification may be impossible due to unobservable factors that vary across firms.

Preliminary analysis using a Wald test as discussed by Wooldridge (2002) further indicated the presence of serial correlation in the idiosyncratic

Table 1. Means, standard deviations, and Pearson correlation coefficients for study variables

		Mean	S.D.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1)	Reputation	3.63	1.00										
(2)	Total firm actions	13.59	11.50	−0.031									
(3)	Firm rep. complexity	0.50	0.23	0.049	0.508								
(4)	Total rival actions	64.40	41.50	0.227	0.382	0.225							
(5)	Rival rep. complexity	0.60	0.15	−0.023	0.350	0.367	0.294						
(6)	Rival response lag	10.46	16.18	−0.158	−0.191	−0.180	−0.553	−0.443					
(7)	Repertoire similarity	1.81	0.31	0.135	0.358	0.453	0.326	0.364	−0.559				
(8)	Ind. concentration	0.71	0.24	−0.295	0.248	0.112	−0.458	0.141	0.433	−0.175			
(9)	Market presence	9.35	1.15	−0.173	0.539	0.447	0.200	0.437	−0.133	0.175	0.261		
(10)	ROA_{t-1}	4.41	4.96	−0.591	−0.047	−0.052	−0.258	0.005	0.098	0.001	0.117	0.123	
(11)	ROA_{t-2}	4.17	5.13	−0.578	−0.055	−0.034	−0.265	0.026	0.086	0.014	0.121	0.098	0.701

$N = 215$. Two-tailed test of significance; all correlations with an absolute value greater than 0.135 are significant at $p \leq 0.05$ or smaller.

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Table 2. Results of fixed effects regression analysis for the effect of firm actions on firm reputation

	Base	(1)	(2)	(3)
Constant	1.826**	1.128†	0.894	0.561
	(0.634)	(0.609)	(0.611)	(0.613)
Market presence	−0.039	0.057	0.114	0.141
	(0.240)	(0.242)	(0.244)	(0.246)
ROA_{t-1}	−0.020	−0.017	−0.017	−0.015
	(0.014)	(0.013)	(0.013)	(0.013)
ROA_{t-2}	−0.005	−0.002	−0.003	0.002
	(0.013)	(0.013)	(0.013)	(0.013)
Industry concentration (C4)	3.206	2.435	2.041	2.017
	(2.232)	(2.231)	(2.240)	(2.241)
Total firm actions		0.011*	0.007	0.010*
		(0.005)	(0.006)	(0.005)
Firm repertoire complexity		0.316*	0.314*	0.352*
		(0.149)	(0.148)	(0.148)
Total actions × C4			0.039	
			(0.026)	
Repertoire complexity × C4				1.215*
				(0.614)
Observations	178	178	178	178
R^2	0.0553	0.1273	0.1410	0.1518
F-value	2.0202	3.3057	3.1669	3.4527
ΔR^2		0.072**	0.0137	0.0245*[a]

† $p \leq 0.10$; * $p \leq 0.05$; ** $p \leq 0.01$; two-tailed coefficient tests. Unstandardized coefficients are presented with standard errors in parentheses.

[a] Change in R^2 reflects a change from Model 1 to Model 3.

errors of our panel-data models. To address this issue, we used the function *xtregar* in Stata (2001), which first corrects for serial correlation using the transformation procedure specified by Baltagi and Wu (1999), and then estimates a within effects estimator for a fixed-effects model. This procedure reduces the sample size by 37 observations due to the data transformation for each firm. To reduce multicollinearity issues resulting from the use of interaction terms in several of the models, variables were centered using the procedure suggested by Cronbach (1987). The results of the analyses are shown in Tables 2 and 3.

Results

Table 2 shows the results of the analyses predicting the reputation effects of the various facets of a firm's market actions. Hypothesis 1 argues that a firm's total market actions will positively affect its reputation. Model 1 demonstrates support for Hypothesis 1 at the $p < 0.05$ level. According to Hypothesis 2 the complexity in a firm's action repertoire has a positive effect on a firm's reputation. The positive coefficient for the repertoire complexity variable is significant at the $p < 0.05$ level in Model 1 and provides support for Hypothesis 2. Testing for the moderating effect of industry concentration on these variables in Model 2 and Model 3, we find that the interaction of total actions and industry concentration is not significant. Hypothesis 3a is therefore not supported. In contrast, the interaction effect between repertoire complexity and industry concentration is significant at the $p < 0.05$ level, supporting Hypothesis 3b. Figure 1 provides a graphical depiction of the effect of this interaction revealing, as hypothesized, that the effects of repertoire complexity on firm reputation are stronger in concentrated industries than in less concentrated industries. Taken together, the results in Table 2 suggest that the total level of actions a firm takes and the complexity of its action repertoire have significant effects on its reputation; and that the effects of repertoire complexity are moderated by industry structure.

Table 3 shows the results of rival actions on firm reputation. Model 1 tests the impact of the substitutive effects of rival actions by assessing the effects of total rival actions (Hypothesis 4a) and the complexity of rivals' action repertoires

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Table 3. Results of fixed effects regression analysis for the effect of rival actions on focal firm reputation

	(1)	(2)
Constant	0.940	1.770**
	(0.617)	(0.640)
Market presence	0.064	−0.012
	(0.242)	(0.240)
ROA_{t-1}	−0.017	−0.016
	(0.014)	(0.013)
ROA_{t-2}	−0.001	0.001
	(0.013)	(0.013)
Industry concentration	2.348	1.884
	(2.236)	(2.242)
Total firm actions	0.011*	0.012*
	(0.005)	(0.005)
Firm repertoire complexity	0.292†	
	(0.152)	
Total rival actions	0.000	
	(0.003)	
Rival repertoire complexity	0.288	
	(0.249)	
Repertoire similarity		0.259*
		(0.124)
Response lag		0.006*
		(0.003)
Observations	178	178
R^2	0.1359	0.1440
F-value	2.6354	3.2442

†$p \leq 0.10$; * $p \leq 0.05$; ** $p \leq 0.01$; two-tailed coefficient tests. Unstandardized coefficients are presented with standard errors in parentheses.

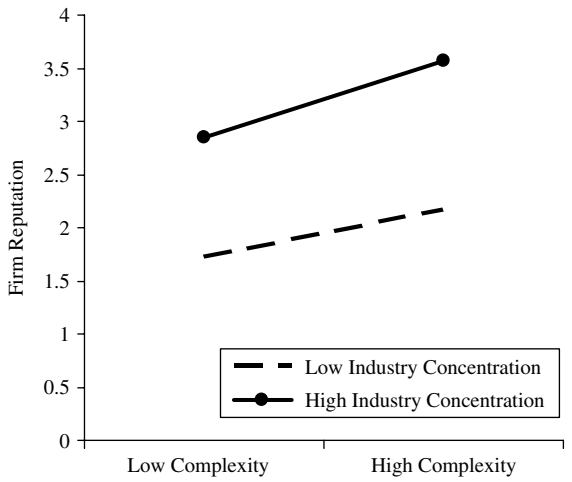

Figure 1. Plot of interaction between firm repertoire complexity and industry concentration

(Hypothesis 4b) on the focal firm's reputation. The lack of significance of either of these variables suggests that the total level and the complexity of rival actions do not affect negatively a firm's reputation. Hypotheses 4a and 4b are therefore not supported. Model 2 tests the impact of complementor effects of rival actions by assessing the effects of rivals' action time lag (Hypothesis 5) and the similarity of a firm's action repertoire with those of its rivals (Hypothesis 6) on the focal firm's reputation. Significant values for both the rival action time lag ($p < 0.05$) and repertoire similarity variables ($p < 0.05$) lend support for Hypotheses 5 and 6, respectively. Together these results suggest that we do not find evidence for substitutive effects of rival actions on a focal firm's reputation; however, we find evidence of complementor effects of rival actions that have a positive effect on a focal firm's reputation.

DISCUSSION

This study advances our understanding of the process by which firms influence their reputations through their market actions. More specifically, we combined ideas from research on signaling theory and competitive dynamics to examine the effect of firms' market actions on their reputations. Viewing market actions as signals that enable stakeholders to form impressions of firms, we investigate the effects of two characteristics of a firm's market actions on its reputation: the total number of actions a firm takes and the complexity of its action repertoire. We find that both of these variables have a positive and significant relationship to firm reputation. Empirical support for the positive effects of firm actions and action repertoire complexity on firm reputation substantiates our theory that market actions are a mechanism through which firms can enhance their reputations.

Our results further lend support to the broader communications perspective advanced in this paper of the signaling process through which reputations are formed. Consistent with our theoretical arguments that industry context moderates the effects of market actions on firm reputations, we find a significant interaction effect between industry concentration and repertoire complexity. Although we do not find the same effect with the total number of actions, our pattern of results is consistent with our general argument that industry context makes a difference in how the signals of firms are received by stakeholders. Our pattern of results is consistent with the idea that action characteristics that

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send more complex signals are more likely to be effective in industries that afford greater levels of stakeholder attention to a focal firm, as is the case in concentrated industries.

Overall, our results are consistent with well-established economics theory (e.g., Milgrom and Roberts, 1982) that a firm's reputation is shaped by its actions. Our first contribution, however, is to provide an empirical test of these ideas. This is an important contribution, because empirical tests of theories based on formal models are an important step in validating any theory and in advancing our knowledge about a given domain. Further, while rooted in the logic of economic models, our study extends these ideas further by examining how firms' market actions influence the general reputations of firms. The concept of reputation reflected in the *Fortune*'s ratings, which we studied, reflects collective perceptions about the ability of a firm to create value on multiple dimensions of evaluation. In contrast, economic models focus on reputations as the perceptions of competitors regarding a particular firm attribute (Weigelt and Camerer, 1988). Extending our knowledge about how firms can influence their general reputations is of considerable theoretical and pragmatic importance because the general reputations of firms are generated through complex social processes and are therefore difficult to influence substantively with any one particular action (Barney, 1991). Yet, we find evidence that a firm can enhance its reputation by taking high levels of market actions and taking a diverse set of actions. This initial effort can guide future research that can advance our understanding of how a firm can influence its reputation.

While prior competitive dynamics research has demonstrated that market actions affect financial performance (Lee *et al*., 2000; Young *et al*., 1996) and the market position of firms (Ferrier *et al*., 1999), our study demonstrates that market actions also contribute to the ability of firms to build reputations with stakeholders. An important direction for future research is to explore to what extent reputations are by-products of market actions undertaken in pursuit of competitive advantage, and to what extent they are outcomes of market actions specifically targeted to increase reputation. Further, our research provides empirical evidence about the characteristics of firms' actions through which firms enhance their reputations. Previous work on reputation has not recognized action repertoire complexity as an important variable that may affect firms' reputations. The positive effects that we find for this variable suggest that future work needs to be done exploring the social and cognitive mechanisms that make complexity a positive action attribute with regard to reputation building.

A second contribution of our study to reputation research is that it addresses the question of how industry context affects signaling process and the ability of firms to build their reputations through market actions. We used industry concentration as a central structural characteristic of industries (Scherer and Ross, 1990). Future research should continue to draw on the wealth of research on the structural characteristics of industries in order to develop a more nuanced understanding of the effect of industry context on the process of reputation building through market actions.

A third contribution of our study is that it is one of the first studies to examine the effects of rival actions on the focal firm's reputation. More specifically we distinguished between substitutive and complementor effects of rival actions and hypothesized that some characteristics of rival actions will have substitutive effects and will impact the reputation of the focal firm negatively, whereas others will have complementor effects and will impact its reputation positively. While we found no support for the hypothesized substitutive effects, we do find support for the hypothesized complementor effects. These findings are important because they address the question of how rival actions impact a firm's reputation and show that the relationship between a firm's reputation and the actions of its rivals is a complex one and provides fertile ground for future research. Given that reputation is often viewed in terms of a rank ordering of firms (Rao, 1994; Roberts and Dowling, 2002), in which the success of one rival in building its own reputation through its actions necessarily detracts from the reputational standing of other firms in the industry, rival actions are conventionally expected to have predominantly negative effects on a firm's reputation. Yet, in our study we find support for the hypotheses that rival actions can have complementor effects when they provide stakeholders with additional information about a firm's actions. We find that slow responses to a firm's actions and the similarity between a firm's action repertoire and rivals' action repertoires indeed positively impacted a focal firm's reputation. These findings suggest that although a firm's reputation depends primarily on its own actions, signals

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regarding the inimitability and legitimacy of its actions, as emitted through the behaviors of its rivals, also influence how stakeholders perceive the focal firm.

Like all studies, this one is not without limitations. First, although we used *Fortune*'s reputational ratings as a measure of a firm's reputation, we share concerns other researchers have expressed about the degree to which this measure captures a firm's reputation with various stakeholder groups (Fombrun, 1996). We view our study as a first step toward understanding the relationship between reputation and market actions, and suggest that future research should pursue these ideas using more refined measures of reputation. Second, using *Fortune*'s reputational ratings limits the availability of reputation scores to firms that are relatively established, and have already achieved some degree of market presence and reputation. As a result, our findings should be interpreted in terms of the ability of established firms to enhance already existing reputations, rather than to build reputations *de novo*. Future research should endeavor to examine how market actions also affect the ability of firms to build reputations, as in the case of new firms, less well-known firms, or firms that have lost their reputations. Finally, because of our interest in examining the role of competitive interactions on the reputation of a focal firm, our sample consisted of firms with larger market presence in terms of sales than the average firm on the *Fortune's* Most Admired Corporations list. While this choice may affect the generalizability of our results, it should be noted that we use sales as a control variable and find that it does not affect significantly a firm's reputation; therefore, our sample does not detract from the findings about the importance of market actions in enhancing a firm's reputation.

In conclusion, this study explored the extent to which a firm's market actions and rivals' market actions affect the focal firm's reputation. Viewing actions as signals through which information about a firm is conveyed to stakeholders, we identified several characteristics of the market actions of firms that may facilitate the formation of positive impressions of a focal firm and, as a result, enhance its reputation. Our work offers a fruitful direction for future research in terms of understanding how firms can strategically shape their reputations while also recognizing the role of industry context and the actions of rivals.

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