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Racial Diversity and Firm Performance: The Mediating Role of Competitive Intensity

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The authors examine the mediating role of competitive intensity in the relationship between managerial racial diversity and firm performance (i.e., market share gain and average stock return). Racial diversity relates to firm performance via firms' capacity to compete intensively (i.e., to introduce new competitive actions frequently). An analysis reveals that environmental munificence moderates competitive intensity's mediating effect: Racially diverse management groups compete more intensively and perform better when they compete in munificent environments. The authors also find support for a moderated mediation model that simultaneously tests all components of their framework.

Keywords: *racial diversity; competitive dynamics; competitive intensity; firm performance; moderated mediation*

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As organizations become increasingly global and the proportion of racial/ethnic minorities in the U.S. workforce grows rapidly, the need increases to understand how racial/ethnic diversity (here, racial diversity) relates to organizational outcomes (Wooten, 2008). Although scholars have referred to the increase in racial diversity within organizations as one of the "most challenging human resource and organizational issues of our time" (Richard, 2000: 164), the literature on racial diversity and organizational performance remains "diminutive" (Richard, Murthi, & Ismail, 2007: 1213). Despite some advances, few studies have gone beyond a simple direct relationship between racial diversity and performance. Missing is an explanation of the process through which racial diversity affects firm performance. In particular, our understanding is still limited regarding intervening variables that mediate the relationship between racial diversity and firm performance, the "black box" (T. Miller & Triana, 2009), and contingencies that weaken or strengthen potential mediating effects (Joshi & Roh, 2009; van Knippenberg & Schippers, 2007). In essence, knowledge is limited as to why and when racial diversity relates to firm performance. We aim to make progress in these directions here.

What theoretical mechanism explains why racial diversity may relate to firm performance? We advance one theoretical explanation and propose that the link between racial diversity and firm performance is mediated by competitive intensity, or the frequency with which organizations introduce newly created competitive actions such as new products, product improvements, price cuts, new advertising campaigns, and new market entries. We argue that managerial racial diversity enhances the capacity to discover new competitive actions and enables firms to compete intensively. Racially diverse groups bring alternative perspectives that stimulate creativity and innovation (Cox, 1991, 1994; McLeod, Lobel, & Cox, 1996). Thus, firms with racially diverse management are likely to consider more options and generate more ideas for launching new competitive moves. They should also be better equipped to detect, interpret, and respond to various environmental cues and market trends and thus respond more rapidly to competitive challenges. As a result, we posit that racially diverse firms develop and introduce new competitive actions more frequently than do firms with homogeneous management teams. Firms that initiate many competitive actions, in turn, are more likely to gain market share and profits because rivals are unable to respond effectively and neutralize the effect of every action. As a result, firms can create a series of temporary competitive advantages (e.g., D'Aveni, 1994; D'Aveni, Dagnino, & Smith, 2010; Ferrier, Smith, & Grimm, 1999; Grimm & Smith, 1997).

To build our framework, we consider and integrate existing diversity theory (Harrison & Klein, 2007), the knowledge-based view of the firm (e.g., Cohen & Levinthal, 1990; Conner & Prahalad, 1996; Grant, 1996; Zahra & George, 2002), and competitive dynamics research (e.g., Chen, Su, & Tsai, 2007; Ferrier et al., 1999; Smith, Ferrier, & Ndofor, 2001; Smith, Grimm, Gannon, & Chen, 1991). At the outset, we argue that managerial racial diversity increases a firm's ability to recognize and exploit opportunities for developing competitive actions and thus to concatenate numerous short-lived competitive advantages that lead to superior performance. Then, we specify an important boundary condition of the mediating effect—*environmental munificence*. We argue that the indirect effect of racial diversity on firm performance through competitive intensity is stronger when firms compete in industries

with high growth potential (munificent environments) than in resource-scarce environments. Thus, we address two research questions: (a) Does managerial racial diversity relate to firm performance via the mediating effects of competitive intensity? (b) Do these mediating effects vary as a function of the munificence of the environments that organizations face?

We offer several contributions to diversity, competitive dynamics, and upper echelons research (Hambrick & Mason, 1984). First, our study is among the first to advance a theoretical mediator of the relationship between managerial racial diversity and firm performance. We begin the process of testing a theory of why diversity and firm performance should be related. We conceptualize managerial racial diversity as a strategically important capability that enables firms to generate various temporal advantages that propel them to supreme performance. Second, our study is among the first to propose and empirically test an integrated moderated mediation model of the diversity–firm performance relationship. We argue and attempt to demonstrate that racial diversity's indirect effect on firm performance through competitive intensity depends on environmental munificence.

Furthermore, we define managerial racial diversity as the extent to which managers in a firm are from multiple racial and/or ethnic groups as opposed to belonging to one category (T. Miller & Triana, 2009; Richard et al., 2007). We focus on the racial composition of the entire management group, which includes all individuals with leadership roles throughout the management chain, lower (e.g., supervisors and line managers), middle (e.g., business unit managers and divisional managers), and top (chief executives), assuming that lower- and middle-level managers, like top executives, are all actively involved in the process of discovering, developing, and introducing competitive actions. Thus, the composition of the entire management group is an important driver of competitive actions (Birkinshaw, 1997; Rouleau, 2005). As Jackson (1992: 351) noted, "[C]orporate level decisions often require input from executives in the business units, and business unit decisions often require input from executives in functionally-defined subunits . . . [hence] the processing of strategic issues permeates the organization, involving individuals at many levels in the organization." Finally, by focusing on racial diversity, we extend managerial demography research that has mainly focused on demographic characteristics such as functional and educational diversity (T. Miller & Triana, 2009; Richard, 2000).

Theory and Hypotheses

Managerial Racial Diversity and Competitive Intensity

According to the knowledge-based view of the firm, firms have varying knowledge bases, and these differences drive their success (Conner & Prahalad, 1996; Eisenhardt & Santos, 2002; Grant, 1996). Each member brings specialized, context-specific knowledge that can be used strategically to respond to market changes (Hayek, 1949). Therefore, the firm's main goal is to "create conditions under which individuals can integrate their specialist knowledge" (Grant, 1996: 112). Firms with racially diverse management provide favorable settings for managers with different knowledge bases to interact frequently; thus, greater

diversity can be a strategic asset that enables firms to gain competitive advantages (Barney & Wright, 1998). We propose here that one mechanism through which managerial racial diversity can enhance firm performance is through its ability to enhance organizations' competitive intensity. There are three primary reasons for our contention.

First, the literature clearly shows that members of racially or ethnically diverse groups hold different norms, assumptions, and preconceptions (Distefano & Maznevski, 2000); their cognitive bases hold, often implicitly, various cultural values, beliefs, and experiences. As a result, diverse management groups consider a wider range of perspectives and generate more alternatives. Experiences and knowledge that managers have accumulated from their racial and ethnic backgrounds, thus, represent rich sources of creativity and innovation (Ely & Thomas, 2001). Supporting this reasoning are studies demonstrating that team diversity negatively relates to groupthink and positively relates to the number and quality of generated ideas (Cox & Blake, 1991; McLeod et al., 1996; Watson, Kumar, & Michaelsen, 1993). Hence, racial/ethnic diversity should offer management groups an advantage in terms of developing ideas for new competitive actions.

Second, managerial racial diversity increases competitive intensity because diverse groups have broader "fields of vision" needed for perceiving and interpreting various environmental signals (Hambrick & Mason, 1984: 195). That is, not only should differences in norms, assumptions, and preconceptions help diverse managerial teams generate more competitive ideas, but these cultural differences also make them more likely to detect competitive threats, signals, and opportunities. By viewing the same challenges through different lenses, they are less likely to overlook important cues (Cohen & Levinthal, 1990). As a result, firms with racially diverse managerial teams should be able to respond to environmental changes and profit opportunities more intensively than firms with more homogenous management teams.

Third, managerial racial diversity should also positively relate to competitive intensity because it helps organizations from falling into competence traps. A potential pitfall for managerial teams is that they are subject to an overreliance on the distinctive capabilities that led to their initial success. They become specialized in a narrow market or technology domain and less able to recognize information outside their specific competences (Levinthal & March, 1993). These consistent patterns of behavior may allow competitors to more easily emulate their success and may also result in missed opportunities for competitive actions. Managerial racial diversity should buffer these hazards and reduce the likelihood of falling into competitive inertia or becoming overly simplistic in competitive action patterns. In terms of racial diversity and competitive intensity, in particular, diverse managerial groups, with backgrounds and experiences shaped by their racial or ethnic group identities, may develop new insights regarding specific ethnic preferences (Cox & Blake, 1991), which can be critical for instigating actions such as advertising campaigns designed for specific ethnic groups, or introductions of new, improved products or product redesigns targeting ethnic customers. In addition, culturally diverse teams have more flexible organizational and cognitive structures that stimulate and facilitate implementation of new methods and practices for providing superior products and services (Cox & Blake, 1991). Finally, managerial diversity increases awareness of local or global opportunities for entering new market segments. Hence, we propose that racially diverse management augments a firm's capacity to generate opportunities for new competitive actions.

It should be noted that some theoretical perspectives suggest that racial diversity negatively affects team outcomes through higher intrateam conflict, fault-line creation, and inversus out-group categorization (Byrne, 1971; Tajfel, 1978). Thus, managerial racial diversity could reduce trust and increase the time for reaching consensus about competitive actions (e.g., Hambrick, Cho, & Chen, 1996). We expect, however, that racial diversity's positive effects on competitive intensity outweigh potential downsides. For one, the negative effects of racial diversity, such as negative social comparison processes and stereotypical thinking, tend to diminish as team members have more opportunities to interact and share information (Watson et al., 1993). Social contact is ongoing and intense in managerial teams, which should assuage stereotypical thinking and resolve early structural issues (Harrison, Price, & Bell, 1998). Watson et al. (1993) found that over a relatively short period (13 weeks) heterogeneous teams became as effective as homogeneous teams in decision-making processes and superior to homogeneous teams in a range of perspectives considered and alternatives generated. Because we capture competitive actions over one-year periods, we propose generally positive effects of managerial racial diversity on competitive intensity. Thus,

Hypothesis 1: Managerial racial diversity will be positively related to competitive intensity.

The Mediating Role of Competitive Intensity

As firms increase competitive intensity, they are more likely to expand their market share and gain superior profits. Because intensive competition and an unprecedented pace of technological change pressure most industries (Bettis & Hitt, 1995; D'Aveni, 1994), firms can gain superior performance by frequently recognizing and discovering new competitive opportunities (Hayek, 1949; Kirzner, 1973). Firms that recurrently recognize opportunities for offering superior value are better able to create new competitive advantages. By the time rivals respond to their actions, these firms are able to create new temporary advantages and thus keep ahead of rivals (D'Aveni, 1994). Following this "Austrian" view of the marketplace, research in competitive dynamics has developed theory and research methodology centered on the concept of competitive action—specific, detectable moves a firm initiates to improve or defend its market position (Chen & MacMillan, 1992; Grimm & Smith, 1997). According to this research, a firm's performance springs from a series of competitive actions initiated over time (Smith et al., 2001). Each new competitive action creates a temporal advantage or erodes rivals' market positions (Young, Smith, & Grimm, 1996). Many successive actions tend to overwhelm rivals by neutralizing the effects of their actions or preventing effective responses. Therefore, because firm performance is an outcome of a series of strategic actions launched over time (D'Aveni, 1994; Grimm & Smith, 1997; Hambrick et al., 1996), firms that intensively "attack" rivals with forceful, multiple, strategic, and competitive thrusts gain greater market share and profits (D'Aveni, 1994; Ferrier et al., 1999; Smith et al., 2001; Young et al., 1996). However, because of time-compression diseconomies, frequently introducing new competitive actions increases development costs (Pacheco-de-Almeida, 2010). Specifically, as firms compress the time for developing new competitive actions, their costs increase exponentially (Dierickx & Cool, 1989; Scherer, 1967). Hence, to outperform rivals, firms must simultaneously introduce actions rapidly but still reduce development costs.

We argue that managerial racial diversity positively affects firm performance through the mediating effects of competitive intensity by increasing the speed and reducing the cost of developing new competitive actions. First, as noted above, racial diversity increases the likelihood that managerial teams will have access to diverse information and perspectives, which in turn increases their ability to recognize opportunities for new market investments, to perceive specific needs and wants of ethnic groups or national markets, and to create advertising and promotions more suitable to particular cultural values (Cox, 1991, 1994). As a result, racially diverse firms are less likely to stagnate and fall into competency traps. Their broader vision allows them to outdo rivals in seizing opportunities and in launching actions more frequently.

Second, compared with firms with homogenous management, firms with racially diverse management incur lower action-development costs. These advantages are accrued because racial diversity facilitates social interactions among individuals with different cognitive and knowledge bases, which in turn encourages more intensive learning, communication, and coordination (Kogut & Zander, 1996). As managers exchange diverse knowledge and experiences, they increase their individual and collective abilities to learn. Learning is an associative process, and prior knowledge affects future ability to learn, so firms with racially diverse management can absorb new knowledge faster but less costly than firms with homogenous management groups (Cohen & Levinthal, 1990). As a result, we can expect that racially diverse firms will have lower costs of learning and making sense of new knowledge and thus will be able to discover opportunities for new competitive actions less expensively than will firms with homogenous management.

To summarize our mediation argument, firms gain market share and profits when they generate a series of temporal advantages. Firms create temporal advantages by frequently launching new competitive actions—by competing intensively. Managerial racial diversity enables them to introduce competitive actions more rapidly and less costly. Hence, we can expect that competitive intensity will mediate the relationship between managerial racial diversity and firm performance. Previous empirical research can be pieced together to further buttress this mediation argument. On one hand, researchers have found that managerial diversity, including racial diversity, positively relates to market-based measures of performance, such as Tobin's Q, market share gain, and stock returns (Hambrick et al., 1996; Richard et al., 2007). On the other hand, competitive intensity relates positively to market share change and profitability (Ferrier et al., 1999; D. Miller & Chen, 1996; Young et al., 1996). Hence, if racial diversity positively affects competitive intensity (Hypothesis 1), we can expect that managerial racial diversity will indirectly affect performance through its impact on competitive intensity.

Hypothesis 2: Competitive intensity will mediate the relationship between managerial racial diversity and firm performance.

Moderating Role of Environmental Munificence

Prior research has also suggested that contextual factors shape the diversity–organizational outcome relationship (Jackson & Joshi, 2004; Jehn & Bezrukova, 2004; Richard, 2000;

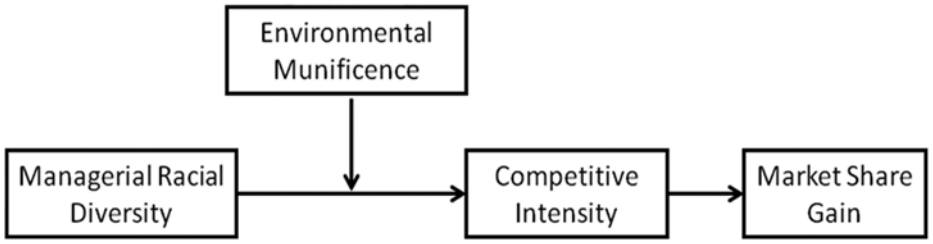
Richard, Barnett, Dwyer, & Chadwick, 2004). A recent meta-analysis found that the direct effects of group-level racial diversity on organizational effectiveness as much as tripled when considering industry- and group-level contextual factors (Joshi & Roh, 2009). In this study, we explore the effect of a key industry characteristic, munificence, on the relationship between managerial racial diversity and competitive intensity. We suggest that the relationship between managerial racial diversity and competitive intensity will be stronger among firms operating in more munificent environments; furthermore, the conditional indirect effects of managerial racial diversity on firm performance through competitive intensity will be stronger in such environments.

Environmental munificence refers to the competitive environment's capacity to support sustained growth (Dess & Beard, 1984). Firms in high-growth industries have greater potential to discover market segments, offer new products, increase geographical and product market scope, and enhance or expand their competitive positions. Although munificent environments provide rich potential for new actions, not all firms have equal capacity to exploit such potential. Environmental munificence is likely to provide greater leverage for firms with racially diverse management teams to capitalize on growth opportunities. The more sensitive managers are to opportunities and the more proactively they convert opportunities into actions, the more they should benefit from munificent environments. To the extent that environments are rife with different types of opportunities and potential growth, racial diversity should have stronger positive effects on competitive intensity. In addition, in munificent situations, not only are opportunities for growth much greater, but often the opportunities are nebulous; the management team must be able to identify and evaluate original knowledge and information, link new and existing knowledge in novel ways, and recognize innovative ways of transforming knowledge into actions (Cohen & Levinthal, 1990; Zahra & George, 2002). As argued above, racially diverse management increases the firm's capacity to recognize and make sense of new knowledge and information. Hence, firms with more diverse management are expected to be more flexible and agile in taking advantage of the strong growth potential.

Moreover, under strong market growth, firms tend to simplify and slow competitive activity (D. Miller & Chen, 1996), a propensity that can be dangerous if the competitive landscape changes suddenly (Park & Mezias, 2005). Managerial racial diversity should also confer advantages in such circumstances because greater field of vision allows them to recognize threats and changes and avoid complacency. Firms with homogenous management will lack the capacity to exploit available opportunities and thus will be unable to introduce many competitive actions.

Finally, under low environmental munificence, firms compete in mature markets with established products and services, adversely affecting their capacity to generate slack resources and profits (Dess & Beard, 1984; Porter, 1980). In contrast, in munificent environments, competitive actions are more likely to lead to increased market share and profits because high-growth markets provide opportunities for firms to increase their sales by attracting new customers rather than stealing customers away from rivals. As a result, firms will have more opportunities for developing feasible competitive actions and more slack resources for acting on discovered opportunities. Consequently, any advantages associated with higher levels of racial diversity should be amplified in munificent environments and minimized in resource-scarce environments.

Figure 1
Moderated Mediation Model



In summary, we expect that firms with high levels of managerial racial diversity that are competing in munificent environments will have greater capacity to recognize and act on opportunities than will firms with homogeneous management or firms that compete in resource-scarce environments. On one hand, firms competing in resource-scarce environments will have fewer opportunities for developing feasible competitive actions and will lack financial resources for acting on discovered opportunities. On the other hand, firms with homogenous management will be unable to identify and exploit available opportunities for growth. Hence, we expect that the positive relationship between racial diversity in management and competitive intensity will be weaker in resource-scarce environments and stronger in munificent environments.

Hypothesis 3: Environmental munificence will moderate the positive relationship between managerial racial diversity and competitive intensity: The relationship will be stronger for firms that operate in highly munificent environments and weaker for firms in less munificent environments.

Moderated Mediation Model

The discussion above suggests that a moderated mediation model will depict more comprehensively the relationship between managerial racial diversity and firm performance. Figure 1 illustrates our moderated mediation model. First, we propose that competitive intensity is an important mediator of the relationship between managerial racial diversity and firm performance, and thus racial diversity affects performance indirectly via competitive intensity. Second, we argue that the effect of managerial racial diversity on competitive intensity depends on how munificently the competitive environment supports growth. More specifically, managerial racial diversity's indirect effect on firm performance, through competitive intensity, will vary at different levels of environmental munificence. We predict that managerial racial diversity will indirectly affect firm performance more strongly for firms competing in highly munificent environments. In contrast, for firms competing in resource-scarce environments, we expect a small or nonexistent mediating effect of competitive actions on the relationship between managerial racial diversity and firm performance. Thus,

Hypothesis 4: The indirect effect of managerial racial diversity on firm performance through competitive intensity will be stronger at higher levels of environmental munificence than at lower levels of munificence.

Method

We collected data from several sources to test our hypotheses. We measured competitive intensity using the content analysis approach developed in the competitive dynamics literature (e.g., Ferrier et al., 1999; Jauch, Osborn, & Martin, 1980; Smith, Grimm, & Gannon, 1992). We used Factiva to retrieve published news articles that announced competitive actions and collected financial performance data from Compustat, Mergent, and CRSP U.S. Stock and U.S. Indices Database. We obtained data on managerial racial diversity and tested our propositions on a multi-industry sample of firms that participated in *Fortune*'s diversity survey from 2001 through 2003, which reported a response rate of about 14% (e.g., Hickman, Tkaczyk, Florian, Stemple, & Vazquez, 2003; Richard et al., 2007). The sample selected in this survey represented a broad cross-section of *Fortune* 1,000 firms and the largest 200 privately held U.S. companies spanning numerous industrial sectors. Some firms participated in the survey for only one or two years, so we tested our hypotheses on unbalanced panel data of 115 firms over three years—2001 to 2003.

Measures

Managerial racial diversity. The *Fortune* survey asked firms to report managers' race using five categories—White, Black, Asian, Hispanic, and American Indian. The survey included data for all levels of managers: lower (e.g., supervisors), middle (e.g., department managers), and top level (e.g., chief executives). We conceptualized managerial racial diversity as "variety" (or categorical variability) rather than "separation" because we wanted to capture racial and ethnic differences among managers (and the associated diversity of knowledge and information) rather than agreement or disagreement about particular values or attitudes among managers (Harrison & Klein, 2007). Therefore, we measured managerial racial diversity using Blau's (1977) index of heterogeneity (H), which is a common formulation in the literature for categorical data (Richard et al., 2007). The index is calculated as, $H = 1 - \sum^{5}_{\alpha = 1} (p_{\alpha})^2$, where p_{α} represents the proportion of managers in the αth race category. The values of the index can range from 0 to .80. In our sample, this index ranged from .02 to .60. An index value close to zero indicated only one category of employees, for example, all White; a value of .60 implied more even managerial representation for all five categories.

Environmental munificence. This variable was operationalized as rate of industry growth computed as $industry\ revenues_{i,t}$ / $industry\ revenues_{i,t-1} - 1$ (Richard et al., 2007).

Competitive intensity. Following researchers in the competitive dynamics area (e.g., Ferrier et al., 1999; Smith et al., 1992), we used structured content analysis of public news

to measure competitive activity (Jauch et al., 1980). This method converted text into a firm-by-variable matrix, which allowed quantitative analysis of the hypotheses (Ryan & Bernard, 2000). We used Factiva, an electronic online database (www.factiva.com), to identify relevant articles announcing competitive actions for each firm in our sample over the three-year period, 2001 to 2003. Using Factiva enhanced our confidence that the published news of competitive actions would not be biased toward firms that predominantly sell in the North American market because Factiva includes about 8,000 worldwide news sources; its news coverage is provided by Reuters—the world's largest news agency—and Dow Jones—the leading news agency in the North American market. In addition, it contains news from specialized magazines across all industries. Factiva provides full news articles in electronic form rather than just news headlines, which substantially increases the reliability of the coding process.

Similar to Ferrier et al. (1999), we first identified all relevant action news using keyword searching criteria in six action categories (signals, product improvements, advertising and promotions, new product introduction, price cuts and sales incentives, and market and capacity expansion) for each firm for 2001 through 2003. This initial search generated about 31,000 articles that were then transferred into a Microsoft Access database and screened for repeating news and irrelevant articles and retaining the earliest chronological appearance of an item. After screening, we identified 20,618 unique competitive actions from 115 firms. To test our coding reliability, two independent raters separately recoded a random sample of 206 articles—1% of the total actions. We used Perrault and Leigh's (1989) reliability index to estimate the interrater reliability coefficient: $Ir = \{[(Fo / N) - (1 / k)][k / (k - 1)]\}^{.5}$, where Fo was number of correct choices, agreement between author coding and rater coding; N was the total number of choices ($N = 206$ randomly selected action codes); and k was the number of action categories ($k = 6$ in our study). The reliability of the coding was .82, exceeding the .70 cutoff (Ryan & Bernard, 2000).

We operationalized competitive intensity as the total number of any newly created competitive actions a firm carried out in a given year. Accordingly, we counted all identified competitive actions for each firm in a given calendar year. High scores indicated that firms initiated competitive actions frequently (competed intensively). Firms in our sample initiated 15.96 competitive actions per year on average (min = 0, max = 324). We log transformed this variable to reduce positive skewness.

Firm performance. We used two measures of firm performance: market share gain and stockholder returns. We chose to use market-based measures of performance because competitive activity is market oriented and observable to customers, investors, and competitors, and thus directly affects the firm's market share gain and stock prices. Market share gain was defined as positive year-to-year change in the proportion of total sales in the focal firm's primary industry that its sales represented (Ferrier, 2001; Ferrier et al., 1999). We computed this variable as $Market\ share\ gain_{i,t} = (Firm\ Sales_{i,t+1} / Industry\ Sales_{i,t+1}) - (Firm\ Sales_{i,t} / Industry\ Sales_{i,t})$.

For comparative purposes, we also tested all hypotheses using average stock return as a measure of firm performance. We used the CRSP U.S. Stock and Indices Database to obtain monthly holding period stockholder returns. The monthly stockholder returns were computed

as [(*Stock Price for Firm i in Month m*) + (*Dividends per Share*$_{i,m}$)] / (*Stock Price*$_{i,m-1}$) – 1. We computed annual stock return for each firm by averaging the 12 monthly stock returns. This approach allowed us to control temporal fluctuations and market trends. The average stock return was computed as *Average Stock Return*$_{i,t+1}$ = ($\sum$ *Stock Return*$_{i,\ t+1,\ m}$) / 12.

Control variables. We controlled for several industry-level and firm-level confounding factors. Previous research in competitive dynamics has shown that firm size and past performance are important antecedents of their propensity to compete intensively (Chen & Hambrick, 1995; Ferrier, MacFhionnlaoich, Smith, & Grimm, 2002; D. Miller & Chen, 1994; Young et al., 1996). We approximated *firm size* as log of total number of employees, and *past performance* using return on total assets (ROA_t). In addition, prior research has demonstrated that racial diversity relates to intermediate measures of performance such as worker productivity (Richard et al., 2007), so we also controlled for *productivity*, which we computed as total sales divided by total number of employees. Grimm and Smith (1997) suggested that research and development, *R&D spending*, could be an important antecedent of competitive actions, so we controlled for total R&D. The availability of slack resources can stimulate risk taking and experimentation (Cyert & March, 1963), which in turn can affect a firm's propensity to develop and execute new competitive actions (Hambrick et al., 1996; Smith et al., 2001). *Financial slack* was measured using the quick ratio, which we computed as current assets minus inventories divided by current liabilities. Higher values of this variable represent more slack resources. Firms in different industries may vary in the extent to which they use different types of competitive actions, so we controlled for *competitive action variety.* We used Blau's (1977) heterogeneity index to compute the extent to which firms use different competitive actions across the six action types. This variable ranges from 0 to .80. We log transformed this variable to reduce positive skewness. We also controlled for *industry concentration* computed as the proportion of the total industry revenues that the top four firms' revenues represented (Berman, Wicks, Kotha, & Jones, 1999). We controlled for *gender diversity* in management to account for and isolate other potential visible attribute diversity effects (Richard et al., 2004). Using Blau's (1977) index of heterogeneity, the measure theoretically ranged from 0 to .50, with higher values reflecting greater gender heterogeneity. Finally, we included random effects in our model to control for unobserved heterogeneity, which we discus in more detail below.

Model Specification

Our sample included firms across 57 industries by three-digit SIC codes. Although we controlled for several important confounding factors, many unobservable factors may create an omitted variable problem. When these factors are firm specific and stable over time—for example, specific industry location, managers' dispositions, or entrepreneurial culture—fixed or random effects panel data models can be successfully applied (Green, 1951). The random effects model, however, must satisfy one additional assumption: The unobserved individual effects should be uncorrelated with the other independent variables. Hausman's (1978) specification test can detect violations of this assumption but was not significant for

our models, indicating that the fixed effects model was less consistent and efficient than the estimates of random effects model that we chose to use. In addition, time-specific factors such as government interventions or economic downturns can also affect firm performance and competitive intensity. Thus, we included a set of dummy variables for each year. Including time dummy variables in panel data models with a large *N* (number of firms) and a small *T* (time periods) also reduces the influence of contemporaneous correlation (Certo & Semadeni, 2006). Finally, Wooldridge's (2006) test for autocorrelation in panel data showed the presence of serial correlation, so we used a random-effects model with time fixed effects and autoregressive error term—AR(1). The random effects model can be formulated,

$$Y_{it+1} = \alpha + \beta X_{it} + \mu_i + \varepsilon_{it}$$

where μ_i is a random heterogeneity specific to the *i*th observation and is constant over time. Random effects μ_i were assumed independent of ε_{it} and X_{it}—a set of independent variables—which were also independent of each other for all *i* and *t*. The autoregressive AR(1) parameter ρ was assumed to be with a zero mean, homoscedastic, and serially uncorrelated: $\varepsilon_{it} = \varepsilon_{it-1} + z_{i,t}$ and $-1 < \rho < 1$.

Our dependent variable in Hypotheses 1 and 3 is a count variable: number of competitive actions, which contains zeros and nonnegative integers, thus exhibiting Poisson distribution. Because the equi-dispersion property was violated ($\alpha = .69$ [.082]; $\overline{\chi}^2$ [01] = 5273.16; Prob. > = $\overline{\chi}^2 = 0.000$), we applied a random effects negative binomial regression model for testing Hypotheses 1 and 3. In addition, because competitive intensity is used in the mediation model where the dependent variable is performance (which is not a count variable, and thus it is tested using linear panel data model), we also tested Hypotheses 1 and 3 applying linear panel data model using log-transformed competitive intensity as the dependent variable. The linear panel data model produced similar results to those of the nonlinear negative binomial model. We report the results of both models in Table 2.

In addition, to increase our confidence in the direction of the causality and to eliminate the possibility that the effect of previous competitive intensity can affect current competitive intensity, we also applied dynamic panel data model (using Arelano-Bond GMM system estimator to deal with the presence of serial correlation because the lagged dependent variable and the error term are correlated; Baltagi, 2008). The results were similar to those shown in Table 2. The interaction effect was weaker (significant at 10%), which can be expected given that the inclusion of a lagged dependent variable reduced our sample to 174 observations, which decreases the statistical power to detect interactions. The form of the interaction effects was consistent with that shown in Figure 2. These results are available on request.

Results

Table 1 shows descriptive statistics and correlation matrix of variables examined in this study. Tables 2 and 3 show the regression analysis results.

Models 2 and 5 in Table 2 show that the coefficient for managerial racial diversity in predicting competitive intensity was positive and statistically significant ($b = .29$, $p < .01$ and $b = .17$, $p < .05$), providing support for Hypothesis 1: Firms with more racially diverse management initiated more competitive actions.

Figure 2
Moderating Effect of Munificence on the Relationship between Managerial Racial Diversity and Competitive Intensity

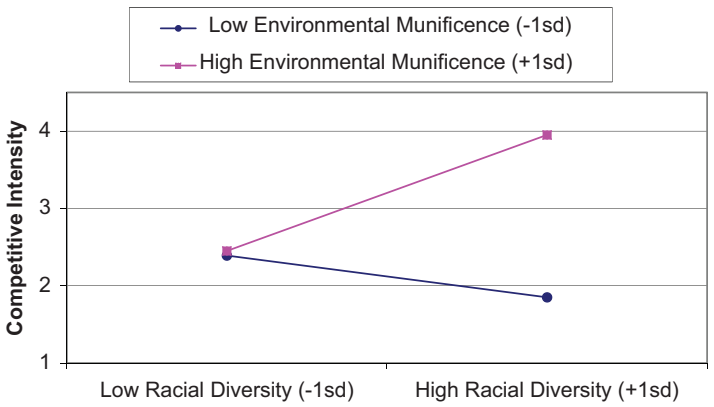


Table 1
Descriptive Statistics and Correlations

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Productivity (log)	–1.26	0.96	1.00												
2. Financial slack	1.13	0.66	.13*	1.00											
3. Number of employees (log)	10.50	1.22	–.56*	–.15*	1.00										
4. Industry concentration	0.60	0.19	–.18*	.09	.33*	1.00									
5. R&D intensity (log)	1.85	2.99	.01	.22*	.26*	.25*	1.00								
6. Past performance (ROA)	0.04	0.12	–.12*	.01	.05	.03	.09	1.00							
7. Action variety (log)	–0.60	0.39	.02	.12*	.34*	.21*	.10*	–.08	1.00						
8. Environment munificence	–0.12	1.51	.03	.02	.02	–.01	–.07	–.02	.13*	1.00					
9. Managerial gender diversity	0.41	0.09	.00	.00	.16*	.19*	–.26*	–.02	.28*	.03	1.00				
10. Managerial racial diversity	0.31	0.12	–.09	.06	.25*	.19*	–.15*	.02	.40*	.11*	.38*	1.00			
11. Competitive intensity (log)	2.77	1.30	.18*	–.04	.48*	.36*	.31*	.03	.33*	.03	.09	.25*	1.00		
12. Market share gain	0.01	0.03	.03	.02	.04	.18*	–.06	.09	.11	–.02	.02	.19*	.21*	1.00	
13. Average stock return	0.01	0.03	–.03	.06	.10	.04	.04	–.14*	.09	.04	.03	.16*	.18*	.07	1.00

Note: $N = 287$.
*$p < .05$.

Table 2
Random Effects Model for Competitive Intensity

	Linear Random Effects Panel Data Model			Negative Binomial Panel Data Model		
	DV: Log Competitive Intensity			DV: Competitive Intensity		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Year 2001	–0.04 (0.07)	–0.01 (0.07)	–0.01 (0.07)	–0.08 (0.05)	–0.06 (0.05)	–0.07 (0.05)
Year 2002	–0.04 (0.07)	–0.01 (0.07)	–0.01 (0.07)	–0.08 (0.05)	–0.07 (0.05)	–0.07 (0.05)
Productivity (log)	0.77** (0.09)	0.76** (0.09)	0.77** (0.09)	0.68** (0.08)	0.66** (0.08)	0.67** (0.08)
Financial slack	–0.1 (0.08)	–0.12 (0.08)	–0.12 (0.08)	–0.11 (0.07)	–0.13† (0.07)	–0.13† (0.07)
Number of employees (log)	0.82** (0.11)	0.77** (0.11)	0.79** (0.11)	0.67** (0.10)	0.62** (0.10)	0.64** (0.10)
Industry concentration	0.20** (0.07)	0.17* (0.07)	0.18* (0.07)	0.10† (0.06)	0.10† (0.06)	0.10† (0.06)
R&D intensity	0.18* (0.08)	0.23** (0.08)	0.22** (0.08)	0.24** (0.07)	0.26** (0.07)	0.25** (0.07)
Past performance	–0.07 (0.04)	–0.07† (0.04)	–0.09* (0.04)	–0.05 (0.03)	–0.06† (0.03)	–0.07* (0.03)
Action variety	0.01 (0.05)	–0.01 (0.05)	–0.01 (0.05)	0.01 (0.05)	0.01 (0.05)	0.02 (0.05)
Managerial gender diversity	0.03 (0.08)	–0.02 (0.08)	–0.04 (0.08)	0.12 (0.07)	0.08 (0.08)	0.06 (0.08)
Environment munificence (EM)	–0.01 (0.04)	–0.01 (0.04)	0.53* (0.24)	–0.01 (0.03)	–0.01 (0.03)	0.39† (0.20)
Managerial racial diversity (MRD)		0.29** (0.09)	0.25** (0.09)		0.17* (0.08)	0.14† (0.08)
MRD × EM			0.49* (0.21)			0.37* (0.18)
Intercept	2.74** (0.09)	2.73** (0.09)	2.67** (0.10)	2.17** (0.16)	2.15** (0.15)	2.14** (0.16)
R^2	.47	.51	.52			
Wald χ^2				120.48	129.16	134.64
Observations	287	287	287	287	287	287
Number of firms	115	115	115	115	115	115

†$p < .10$. *$p < .05$. **$p < .01$.
Note: Standard errors are in parentheses.

To test the mediation, we followed Baron and Kenny's (1986) criteria. Table 3 illustrates the results for the mediating role of competitive intensity on the relationship between managerial racial diversity and market share gain. We multiplied market share gain by 100 to interpret the coefficients within two decimals. The coefficient for competitive intensity was statistically significant ($b = .73$, $p < .01$) in predicting market share gain (Model 2). The coefficient for managerial racial diversity in Model 3 was also statistically significant ($b = .32$, $p < .01$) when we did not control for competitive intensity. However, when we regressed market share gain on competitive intensity and managerial racial diversity (Model 4), the coefficient of managerial racial diversity was not significant ($b = .20$, $p < .138$), whereas the coefficient for competitive intensity remained statistically significant ($b = .68$, $p < .05$). Table A1 in the appendix shows similar results for average stock market return as a measure of performance. These results provide support for Hypothesis 2: Competitive intensity is an

Table 3
Random Effects Model for Market Share Gain

	DV: Market Share Gain			
	Model 1	Model 2	Model 3	Model 4
Year 2001	–1.57** (0.55)	–1.56** (0.54)	–1.50** (0.55)	–1.51** (0.55)
Year 2002	–1.71** (0.47)	–1.71** (0.46)	–1.67** (0.47)	–1.69** (0.47)
Productivity (log)	0.26 (0.25)	–0.18 (0.27)	0.25 (0.25)	–0.16 (0.27)
Number of employees (log)	0.08 (0.27)	–0.43 (0.29)	0.04 (0.27)	–0.43 (0.29)
Industry concentration	0.62** (0.23)	0.43† (0.24)	0.56* (0.22)	0.41† (0.23)
R&D intensity	–0.54* (0.25)	–0.56* (0.25)	–0.47† (0.26)	–0.52* (0.26)
Past performance	0.45* (0.19)	0.42* (0.18)	0.43* (0.19)	0.41* (0.18)
Action variety	0.26 (0.17)	0.2 (0.14)	0.2 (0.17)	0.16 (0.15)
Environment munificence	–0.17** (0.06)	–0.15† (0.09)	–0.18* (0.07)	–0.16† (0.09)
Managerial gender diversity	–0.38 (0.24)	–0.34 (0.23)	–0.43† (0.24)	–0.37† (0.22)
Competitive intensity		0.73** (0.26)		0.68* (0.28)
Managerial racial diversity			0.32* (0.16)	0.20 (0.18)
Constant	1.78** (0.43)	1.76** (0.42)	1.74** (0.43)	1.74** (0.43)
R^2	.19	.23	.20	.24
Observations	285	285	285	285
Number of firms	115	115	115	115

†$p < .10$. *$p < .05$. **$p < .01$.
Note: Standard errors are in parentheses.

important mediator of the relationship between managerial racial diversity and performance.

Table 2 shows the results of the moderating role of environmental munificence on the relationship between managerial racial diversity and competitive intensity. The coefficients for the interaction between managerial racial diversity and munificence in predicting competitive intensity (Table 2, Models 3 and 6) are positive and statistically significant ($b = .49$, $p < .05$ and $b = .37$, $p < .05$), providing support for Hypothesis 3. The form of the interaction is shown in Figure 2 (we used the estimates of the linear regression model to plot the interaction effects). As predicted, the effect of managerial racial diversity on competitive intensity was positive at high-level munificence and not significant at low-level munificence.

Table 4 illustrates the results for the moderated mediation model for market share gain (the results for average stock returns are similar and shown in Table A2 in the appendix). We followed Preacher, Rucker, and Hayes's (2007: 186) procedure to estimate the conditional indirect effect of managerial racial diversity on firm performance through competitive intensity at different levels of the moderating variables. Preacher et al. referred to the conditional indirect effect as "the magnitude of an indirect effect at a particular value of a moderator" and offered two approaches for computing the conditional indirect effects and their standard errors: normal theory-based and bootstrapping methods. As these authors advocated, we applied the bootstrapping method. We also applied the normal theory approach, with equivalent results, but report only the bootstrapping results here. The results of the normal theory approach are available on request. As Table 4 shows, the indirect effect of managerial racial diversity on market share gain increased from 0.09 at low-level industry growth to 0.16 at high-level industry growth, supporting Hypothesis 4.

Table 4
Moderating Role of Munificence on the Indirect Effect of Managerial Racial Diversity on Market Share Gain through Competitive Intensity

	DV: Market Share Gain					
	Mediator: Competitive Intensity					
	Observed Coeff.	Bias	Bootstrap *SE*	95% CI		
Racial diversity at low industry growth (–1 *SD*)	0.09	0.01	0.22	–0.29	0.66	P
				–0.22	0.77	BC
Racial diversity at moderate industry growth (*M*)	0.13	0.00	0.07	0.02	0.28	P
				0.03	0.31	BC
Racial diversity at high industry growth (+1 *SD*)	0.16	–0.01	0.19	–0.21	0.60	P
				–0.09	0.73	BC

Note: CI = confidence interval; P = percentile CI; BC = bias-corrected CI.

Supplemental Analysis

For parsimony, we did not hypothesize about gender diversity in management. Expecting a similar pattern of results to emerge, we tested all four hypotheses for gender diversity in management in a separate set of equations. Consistent with our finding for racial diversity in management, Hypotheses 1 and 3 were weakly supported at a 10% level (in this article, we apply the more conservative two-tailed *t* test). However, Hypotheses 2 and 4 were not supported. Full results and tables are available on request. Our findings show that our theoretical framework holds much better for racial diversity than for gender diversity.

In addition, competitive dynamics research has suggested that both competitive intensity and action variety can enhance market share (e.g., Ferrier et al., 1999). Competitive action variety refers to the extent that a firm uses a wide range of action types. As discussed, managerial racial diversity increases a firm's potential to recognize and assimilate diverse knowledge and information, which in turn enhances its capacity to recognize a broad range of opportunities for new competitive actions. Hence, we could hypothesize and find support that racially diverse firms will develop wider ranges of competitive actions. Both racial and gender diversity in management positively and significantly affected competitive action variety ($b = .08$, $p < .01$, and $b < .06$, $p < .04$, respectively). Our additional analysis showed that the relationship between managerial racial diversity and competitive action variety was curvilinear; it sharply increased from low diversity levels to moderately high levels, and then the rate of increase decelerated (the zero-slope point was found at about +2 standard deviations from the mean). We also tested whether action variety mediates the relationship between managerial racial diversity and firm performance and found no support for the moderated mediation model. One reason for these insignificant results is that action variety was also related in curvilinear fashion to firm performance (at 10% level), which substantially increased the complexity of our model.

Discussion

This study examines the process through which managerial racial diversity influences firm performance. We show that competitive intensity is an explanatory mechanism of the relationship between racially diverse management and firm performance. Racially diverse firms perform better than homogenous firms because they can launch new competitive actions more frequently. Greater managerial racial diversity provides favorable conditions for individuals with diverse knowledge bases to exchange knowledge and information, which in turn increases the capacity to recognize and exploit opportunities for new competitive actions. This capacity reduces the development costs and hastens the introduction of competitive actions. Hence, compared to firms led by homogenous management, firms with racially diverse management can create more temporal advantages and increase market share and profits.

We find that competitive intensity completely mediates racial diversity's effect on market share gain. These results empirically support Cox and Blake's (1991) reasoning that firms with culturally diverse managements gain competitive advantage because they enjoy (a) cost advantages enabling them to offer frequent competitive actions such as price cuts and sales incentives; (b) greater marketing ability leading to discovery, increased promotions, product improvements, more creative advertising, and entrance into new markets; (c) superior creativity and innovativeness resulting in development of new products and services; and (d) enhanced flexibility that hastens product development, for example, and increases novel product introductions. Thus, our study provides empirical support for previously untested assumptions that racial diversity affects firm performance by enabling firms to compete more effectively. Our supplemental analysis further corroborates these results, showing that both racial and gender diversity in management positively affect a firm's capacity to introduce a wide range of action types.

Furthermore, we find that managerial racial diversity relates to competitive intensity more strongly and positively for firms operating in highly munificent environments. Given that munificent environments provide many growth opportunities, firms with more racially diverse management are better able to exploit their abundant growth potential. For example, our results show that firms with highly diverse management (+1 *SD* from the mean) that competed in highly munificent environments (+1 *SD* from the mean) introduced 50.90 competitive actions, which was well above the sample average of 15.96. The predicted values were anti–log transformed because our dependent variable was the log of the number of competitive actions. Firms with homogeneous management introduced fewer than average competitive actions—10.70 competitive actions in resource-scarce environments and 11.59 competitive actions in munificent environments. In addition, our findings suggest that managerial racial diversity confers no competitive advantages for firms operating in environments that lack munificence. For example, firms with diverse management competing in environments with low growth potential introduced only 6.62 competitive actions.

We also test whether the effect of competitive intensity on firm performance is stronger in munificent environments, but find no support for this conjecture. Our results suggest that more aggressive firms gain superior performance across industries with different growth

rates. Racial diversity in management enables firms to compete intensively in high-growth industries, whereas ability to compete intensively in low-growth industries should rely on other sources of competitive advantage (e.g., economy of scale and scope, total quality management, or human resource management practices). Future research is needed to examine the antecedents of competitive intensity in stable, low-growth industries.

On a separate note, these results suggest that the relationship between managerial racial diversity and firm performance is not spurious. An alternative interpretation might be that in high-growth industries, competitive intensity stimulates firms to employ more diverse managers and at the same time competitive intensity can positively affect firm performance. Thus, the observed indirect relationship between racial diversity and firm performance may exist because the firm's propensity to compete intensively causes both variables. However, if that is true, then both competitive intensity and managerial racial diversity should behave similarly and more strongly affect firm performance in high-growth industries than in low-growth industries. In contrast, we find that competitive intensity positively relates to firm performance regardless of the industry growth, whereas racial diversity positively relates to firm performance through competitive intensity only in high-growth industries.

Limitations and Future Research

Our study cannot completely rule out reverse causality; that is, firms that compete more intensively may employ more diverse workforces. Although controlling for previous competitive intensity failed to change our results, suggesting that reverse causality is not a serious issue here (e.g., Makadok, 1998), we encourage future research to explore the causality of the relationship between competitive intensity and managerial racial diversity over longer periods. Longitudinal studies can reveal a better understanding of the relationship among racial diversity, competitive intensity, and firm performance over time. For example, managerial racial diversity can positively affect competitive intensity in initial periods, but as competitive intensity increases so does the need for racially diverse management, so that firms may increase their racial diversity in the next period and in turn increase their capacity to compete intensively.

Furthermore, we took several actions to assess and expand the generalizability of our findings. First, to ensure that our companies represented the population, we included firms from the 50 Best Companies for Minorities list, the Diversity Elite, and others the list excluded. In fact, about 60% of the firms in the sample were not in the Diversity Elite, increasing our confidence that our sample composed firms with different racial diversity levels. Our diversity index provided near maximum variation on our major variable of interest: from 0.02 (practically no diversity) to 0.60 (high diversity). A list of companies in our sample is available on request.

In addition, we performed tests for assessing the impact of media coverage bias on our results. We analyzed two types of media coverage bias: interfirm coverage bias and North American bias. The former bias refers to unequal coverage of competitive actions across firms. Larger firms may attract more media attention and thus exhibit disproportionally more competitive actions. To reduce the interfirm media coverage bias, we focused on large corporations

(*Fortune* 1,000 firms and the largest 200 privately owned corporations). However, this approach limits the generalizability of our findings to large corporations. Future research should empirically test our moderated mediation model in small businesses.

The North American bias refers to the unequal coverage of firms' competitive actions within and outside of North America. To address this issue, we collected data on the number of articles published for each firm within and outside of North America. We searched Factiva for articles using three keywords: firm name (in the headline), time period (2001–2003), and region (North America or outside of North America). We created two variables: number of articles within North America (WNA) and number of articles outside of North America (ONA). First, we checked whether WNA and ONA have equal means (i.e., whether firms in our sample have equal media coverage within and outside of North America). We ran a simple *t* test on the equality of means. The *t* test was statistically significant at $p < .0001$ (WNA $M = 893.15$, ONA $M = 432.68$), which indicates that the firms in our sample generated more media coverage within North America than they did outside of North America (alternatively, Factiva may report more news from North America than it reports from outside North America). However, a more serious concern for our study is whether interfirm variability in media coverage within North America is different from such coverage outside North America. To test this possibility, we regressed several firm-level characteristics that are likely to draw media attention such as firm size, R&D investments, and firm performance on both WNA and ONA. We tested whether the estimated coefficients for WNA and ONA are statistically different from each other (i.e., H0: bWNA = bONA). The null hypothesis was not rejected for any model: R&D, $\chi^2(1) = .21$; Prob > $\chi^2 = .64$, firm size, $\chi^2(1) = .04$; Prob > $\chi^2 = .84$, and performance, $\chi^2(1) = .87$; Prob > $\chi^2 = .35$. This analysis suggests that interfirm media coverage in North America is not different from that outside North America. Although these additional tests increase our confidence that North American bias does not seriously affect our findings, future research is needed to examine how specific characteristics of national and geographical markets affect our moderated mediation model.

Another study limitation is that we failed to account for other diversity dimensions, except for controlling and testing the effects of managerial gender diversity on competitive intensity and firm performance. Future research might employ a moderation mediation approach to study comprehensively both visible characteristics—for example, race—and invisible characteristics—for example, functional background. Such analysis could provide greater understanding of the differential effect of visible and invisible characteristics on competitive activity and performance.

Future research should also examine how other characteristics of the external and internal environment moderate the effect of competitive intensity. For example, our understanding is still limited as to how firm-specific moderators such as nominal group techniques, shared rewards, and diversity climates affect the relationship between managerial racial diversity and firm performance (Ely & Thomas, 2001; Joshi & Roh, 2009; Klein & Harrison, 2007). In addition, nearly 75% of large companies in the United States offer some form of diversity training (Anand & Winters, 2008; Galvin, 2003) in efforts to facilitate positive intergroup relations, reduce prejudice and discrimination, and improve interactions among dissimilar coworkers (Pendry, Driscoll, & Field, 2007). Diversity training teaches employees about cultural subgroups, improves their attitudes toward diversity, and ultimately develops skills

for interacting successfully with diverse others (Hayles, 1996; Kulik & Roberson, 2008). As a result, diversity training stimulates greater social interaction between individuals with diverse knowledge bases. Thus, we can expect that diversity training will expand the collective capacity to discover and develop new competitive actions, and we should examine whether competitive intensity will have a stronger mediating effect for firms that have implemented diversity programs.

Prior research suggests that industry context—service, manufacturing, and high technology—is an important contingency of the relationship between managerial diversity and firm performance (Joshi & Roh, 2009). For example, Richard et al. (2007) found that racial diversity's effect on firm performance is stronger in service industries than it is in manufacturing industries because racial diversity contributes to building marketing competence, which is critical for service-oriented firms. In contrast, manufacturing firms are highly capital intensive and thus rely less on human capital and more on technology and equipment. In addition, racial diversity can positively affect firm performance in high-technology industries because it contributes to building intellectual capital, which is critical for competing successfully in industries such as information technology, consumer electronics, and biomedical technology (Joshi & Roh, 2009). Consistent with previous studies, we expect that competitive intensity's mediating effect will be stronger in service and high-technology industries and weaker in manufacturing industries. Future research is needed to provide empirical support for this proposition.

Future research should also examine other mediating factors. For example, van Knippenberg, De Dreu, and Homan (2004: 1011) emphasized the role of elaboration of task-related information as an important mediating factor of the diversity–outcomes relationship; elaboration refers to "the exchange of information and perspectives, individual-level processing of the information and perspectives, the process of feeding back the results of this individual-level processing into the group, and discussion and integration of its implications." Although our model does not directly test managers' elaboration of relevant information and expertise, elaboration is closely related and/or antecedent to competitive intensity. For example, describing the elaboration process, van Knippenberg et al. (2004: 1011) noted,

> [H]igh-quality performance requires that team members inform the team on the basis of their own expertise about the different issues involved (e.g., customer wishes, design and program possibilities, costs), carefully process the perspectives introduced by other team members to understand the implications for their own area of expertise, feed these implications back to the team, and through integration of perspectives design the optimal product.

In fact, recent group research has found that elaboration of task-relevant information mediates visible attribute diversity including age and nationality, particularly when a transformational leader leads the team (Kearney & Gebert, 2009). This suggests that firms may be better able to frequently introduce new competitive actions when racially diverse management groups engage in effective elaboration but also emphasizes that CEO leadership style may play a moderating role. Racial diversity provides greater potential to recognize opportunities for competitive actions, but whether firms can exploit that potential will depend on their ability, through elaboration, to develop and introduce

competitive actions. In this sense, competitive intensity is actually a manifestation of effective elaboration, suggesting close connection and complementarities between the moderated mediation model developed in this article and the model developed by van Knippenberg et al. (2004). Future research should examine how van Knippenberg et al.'s (2004) other moderating factors such as CEO leadership style may affect competitive intensity.

Finally, our study provides some practical implications for executives. We find that managerial diversity at every organizational level (lower, middle, and top levels) can be a source of competitive advantage in industries with high growth potential. Racial/ethnic diversity increases a firm's capacity to recognize and act on opportunities for developing new competitive actions, which is critical for creating temporal competitive advantages. Therefore, top managers might consider specific recruitment, selection, and promotion practices for a more balanced representation of managers from various racial and ethnic groups at every organizational level, especially if their firms compete in highly munificent competitive environments.

Although our study supports competitive intensity's mediating effect only in high-growth industries, managerial diversity may be relevant also for industries with limited growth potential. Our findings suggest only that market-based, observable competitive activity does not carry the effect of racial diversity on firm performance in low-growth industries. Consistent with competitive dynamics research, we focused on observable competitive moves, which fail to capture internal competitive moves that often go publicly unannounced. The intensity in initiating internal competitive actions such as implementing new human resource management practices, improving manufacturing processes, and undertaking other undisclosed innovations might be critical drivers of firms' competitive success in low-growth industries. We encourage future research to explore other mediating mechanisms relevant to competition in low-growth industries and to examine whether internal, undisclosed initiatives mediate the effect of managerial racial diversity on firm performance in both resource-scarce and munificent industries.

Conclusion

This study advances two research streams regarding organizational performance: effects of racial diversity grounded in the knowledge-based view of the firm and competitive dynamics and temporal advantages theory. We illuminate the process through which racial diversity in management relates to market share and stock returns by increasing a firm's capacity to compete intensively and gain temporal advantages. Thus, managerial racial diversity represents an organizational capability that enables firms to discover and exploit opportunities for developing new competitive actions through active participation of managers who bring different cognitive and knowledge bases to every organizational level. In addition, we find that managerial racial diversity indirectly affects firm performance through competitive intensity, depending on environmental munificence. Racial diversity in management enhances the capacity to develop new competitive actions in competitive environments with high growth potential.

Appendix

Table A1
Random Effects Model for Average Stock Market Return

	DV: Average Stock Market Return			
	Model 1	Model 2	Model 3	Model 4
Year 2001	–1.70** (0.35)	–1.71** (0.26)	–1.62** (0.35)	–1.65** (0.35)
Year 2002	0.91** (0.34)	0.90** (0.29)	0.96** (0.34)	0.94** (0.34)
Productivity (log)	0.18 (0.21)	–0.18 (0.20)	0.17 (0.21)	–0.15 (0.24)
Number of employees (log)	0.42† (0.24)	0.00 (0.26)	0.36 (0.24)	0.01 (0.28)
Industry concentration	0.10 (0.19)	–0.04 (0.16)	0.03 (0.19)	–0.08 (0.19)
R&D intensity	0.01 (0.18)	–0.02 (0.18)	0.09 (0.18)	0.04 (0.18)
Past performance	–0.36* (0.16)	–0.37 (0.27)	–0.38* (0.16)	–0.39* (0.16)
Action variety	0.12 (0.18)	0.08 (0.15)	0.04 (0.18)	0.02 (0.18)
Environment munificence	–0.13 (0.14)	–0.12 (0.18)	–0.14 (0.14)	–0.13 (0.14)
Managerial gender diversity	–0.11 (0.19)	–0.11 (0.17)	–0.18 (0.19)	–0.15 (0.18)
Competitive intensity		0.61** (0.22)		0.55* (0.22)
Managerial racial diversity			0.41* (0.20)	0.31 (0.20)
Constant	1.20** (0.28)	1.20** (0.20)	1.15** (0.28)	1.17** (0.28)
R^2	.09	.14	.12	.15
Observations	287	287	287	287
Number of firms	115	115	115	115

†$p < .10$. *$p < .05$. **$p < .01$.
Note: Standard errors are in parentheses.

Table A2
Moderating Role of Munificence on the Indirect Effect of Managerial Racial Diversity on Average Stock Return through Competitive Intensity

	DV: Average Stock Market Return					
	Mediator: Competitive Intensity					
	Observed Coeff.	Bias	Bootstrap *SE*	95% CI		
Racial diversity at low industry growth (–1 *SD*)	0.10	0.03	0.12	–0.03	0.42	P
				–0.07	0.36	BC
Racial diversity at moderate industry growth (*M*)	0.12	0.00	0.06	0.03	0.25	P
				0.03	0.26	BC
Racial diversity at high industry growth (+1 *SD*)	0.14	–0.02	0.11	–0.08	0.31	P
				–0.01	0.45	BC

Note: CI = confidence interval; P = percentile CI; BC = bias-corrected CI.

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