Journal of Management

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Journal of Management 2005; 31; 492
DOI: 10.1177/0149206304272188

The online version of this article can be found at:
http://jom.sagepub.com/cgi/content/abstract/31/4/492

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Do Organizational Climate and Competitive Strategy Moderate the Relationship Between Human Resource Management and Productivity?

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This study examined whether the effectiveness of human resource management (HRM) practices is contingent on organizational climate and competitive strategy. The concepts of internal and external fit suggest that the positive relationship between HRM and subsequent productivity will be stronger for firms with a positive organizational climate and for firms using differentiation strategies. Resource allocation theories of motivation, on the other hand, predict that the relationship between HRM and productivity will be stronger for firms with a poor climate because employees working in these firms should have the greatest amount of spare capacity. The results supported the resource allocation argument.

Keywords: *organizational climate; human resource management; productivity (employee); competitive strategy; employee motivation*

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Journal of Management, Vol. 31 No. 4, August 2005 492-512
DOI: 10.1177/0149206304272188

During the past decade, there has been a great deal of interest in the relationship between human resource management (HRM) practices and firm performance. Proponents of the resource-based view of the firm (Barney, 1991) have argued that traditional sources of competitive advantage, such as access to technology and capital, are becoming less effective as these assets become more widely imitated. Human capital is argued to represent an asset that can provide a source of sustained competitive advantage because it is often difficult to imitate and hard to substitute for. Organizations use HRM practices and systems to acquire and develop this capital. A number of studies have demonstrated that HRM practices, either individually or as a system, are associated with higher levels of productivity or profitability at the organizational level of analysis (e.g., Arthur, 1994; Guest & Hoque, 1994; Hoque, 1999; MacDuffie, 1995; Youndt, Snell, Dean, & Lepak, 1996).

One of the issues that has featured prominently in the HRM literature is the question of whether the relationship between HRM practices and indicators of organizational effectiveness, such as productivity, is universal or contingent. The universal, or "best practice," view suggests that certain types of HRM practices are more effective than others (Huselid, 1995; Pfeffer, 1994). For example, firms that use valid selection procedures should typically have more highly skilled and motivated staff than firms that do not use valid selection procedures (Schmidt, Hunter, McKenzie, & Muldrow, 1979). The contingency view, on the other hand, suggests that some firms will gain greater benefits from these practices than others. Schuler and Jackson (1987), for example, argue that the effectiveness of HRM practices is contingent on the strategy that a firm uses to gain competitive advantage in the market. According to this argument, HRM practices that enhance the knowledge, skill, ability, and motivation of employees would have a greater impact on productivity if the firm is using a strategy that requires highly skilled and motivated employees.

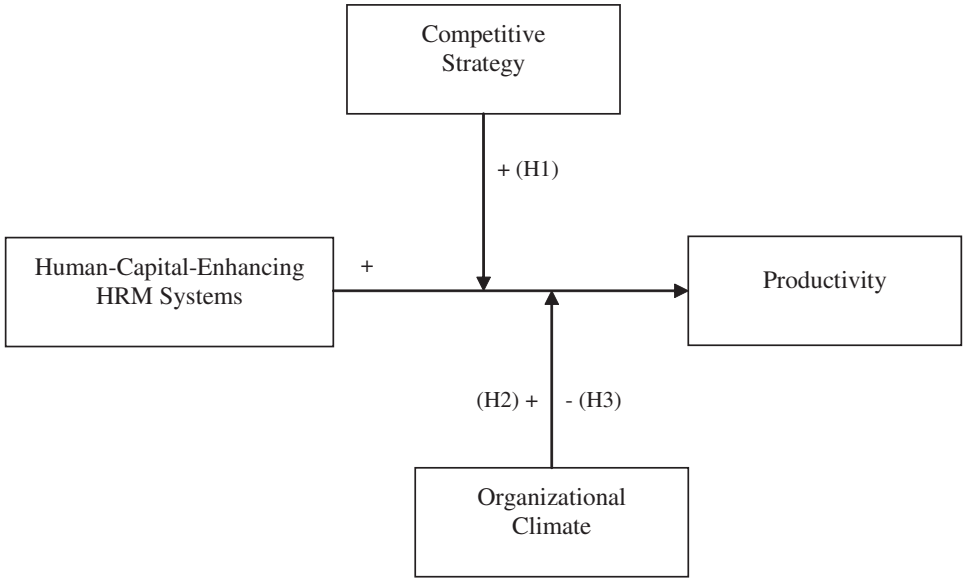
The aim of the current article is to assess whether the effectiveness of HRM systems designed to enhance the knowledge, skill, ability, and motivation of employees is contingent on organizational climate and competitive strategy. In the following sections, we define the constructs used in the current study and develop a set of competing hypotheses regarding the way in which they may interact. These competing hypotheses are shown in Figure 1.

Theory

Human Resource Management (HRM)

The term *HRM system* refers to a set of internally consistent HRM practices. In the current study, we focus on HRM systems that are designed to enhance the knowledge, skill, ability, and motivation of employees. These types of systems have variously been termed "high commitment" (Pfeffer, 1994), "high performance" (Huselid, 1995), or "human-capital-enhancing" (Youndt et al., 1996) HRM systems. It has been argued that these types of systems enhance productivity and profitability by increasing the likelihood that employees will perform their jobs better and engage in other behaviors (e.g., citizenship behaviors) that make a positive contribution to the organization (Neal & Griffin, 1999; Schuler & Jackson, 1987; Wright & MacMahan, 1992).

Figure 1
The External Fit (Hypothesis 1), Internal Fit (Hypothesis 2), and Limited-Capacity (Hypothesis 3) Hypotheses



Note: HRM = human resource management.

Previous studies of human-capital-enhancing HRM systems have varied widely with respect to the practices that are included within these systems (e.g., see MacDuffie, 1995; Pfeffer, 1994). However, there is a subset of practices for which there is a reasonable level of agreement across studies. Youndt et al. (1996) identified these as selection, training, performance appraisal, and compensation. A great deal of research has been carried out examining the effectiveness of these practices, and proponents of a best-practice approach have used this research as the basis for claims regarding their universal applicability.

In addition to the four major areas of practice outlined above, we also incorporated work design into our assessment of the HRM system. A number of authors have identified work design as an important component of a human-capital-enhancing HRM system (Huselid, 1995; MacDuffie, 1995; Pfeffer, 1994). A substantial body of evidence from the work design literature suggests that job enrichment and teamwork enhance employee satisfaction and motivation (Fried & Ferris, 1987). Recently, a number of studies have demonstrated that job enrichment and teamwork may also contribute to improvements in contextual aspects of performance, such as employee adaptability and proactivity (Frese, Kring, Soose, & Zempel, 1996; Parker, Wall, & Jackson, 1997).

Competitive Strategy

Within the strategic management literature, a distinction is commonly drawn between cost leadership strategies and differentiation strategies (Porter, 1980). Firms pursuing a cost leadership strategy attempt to gain competitive advantage by becoming the lowest cost producer in the market. Firms pursuing a differentiation strategy typically focus on differentiating their product or service from their competitors', on the basis of factors such as quality or innovation.

A number of authors have argued that firms pursuing differentiation strategies should gain greater benefits from the use of human-capital-enhancing HRM systems than firms pursuing cost leadership strategies (e.g., Guthrie, Spell, & Nyamori, 2002; Schuler & Jackson, 1987; Youndt et al., 1996). These authors have argued that firms attempting to differentiate their products and services on the basis of quality or innovation require a highly skilled and motivated workforce. Employees working in these firms need to be able to identify and solve problems before they affect production and need to be able to interact with each other in order to exchange information and ideas. These employees need to be more competent, more adaptable, and show higher levels of personal initiative than their competitors. Firms using differentiation strategies, therefore, stand to benefit from providing enriched team-based jobs and investing in comprehensive selection, induction, training, performance appraisal, and compensation systems. Firms pursuing a strategy based on cost leadership, on the other hand, tend to introduce systems, processes, and technologies that maximize direct managerial control over employee behavior and minimize any opportunities for individual differences in knowledge, skill, and motivation to affect output (Arthur, 1992; MacDuffie, 1995). In this way, cost leaders are able to maintain high levels of output while minimizing the input costs associated with labor.

However, empirical tests of the prediction that competitive strategy should moderate the relationship between HRM systems and productivity have produced inconsistent results, possibly because of differences in the way that productivity is measured. A number of studies have found evidence that the relationship between human-capital-enhancing HRM systems and subjective ratings of productivity is stronger in firms pursuing a differentiation strategy than in firms pursuing a cost reduction strategy (Hoque, 1999; Youndt et al., 1996). Some studies have found this effect using objective measures of productivity (MacDuffie, 1995), whereas others have not (Huselid, 1995). It is also possible that the tendency of firms to choose HRM systems that match their competitive strategy (or vice versa) could obscure any interaction between these variables. The power to detect an interaction between two variables is limited by the strength of the correlation between them. Assuming that the correlation between HRM systems and competitive strategy is not so strong as to obscure any interaction between the two, our first hypothesis (termed the *external fit hypothesis*) is as follows:

Hypothesis 1: The positive relationship between human-capital-enhancing HRM systems and productivity will be stronger for firms pursuing a differentiation strategy than for firms pursuing a cost leadership strategy.

Organizational Climate

The term *psychological climate* refers to individual perceptions of organizational attributes, such as policies, practices, and procedures (James, James, & Ashe, 1990; Reichers & Schneider, 1990). These can include perceptions of HRM practices (e.g., job enrichment) as well as other organizational attributes. When these evaluations are shared by a sufficiently large number of people within a workplace, they are referred to as *organizational climate*. One of the most common types of climate examined within the literature is what James et al. (1990) referred to as "general psychological climate" and Burke, Borucki, and Hurley (1992) referred to as a "human relations climate." General psychological climate reflects "the extent to which the environment is personally beneficial vs personally detrimental (damaging or painful) to one's sense of well-being" (James et al., 1990: 53). Examples of different dimensions of general psychological climate include leader support, management concern, and job autonomy (James & James, 1989).

A positive organizational climate is thought to enhance employee motivation and increase the likelihood that employees will allocate discretionary effort to their work tasks (Brown & Leigh, 1996; Neal & Griffin, 1999). A small number of studies have found that climate is positively associated with productivity at the organizational level of analysis (Hansen & Wernerfelt, 1989; Ostroff & Schmitt, 1993). Other studies have demonstrated that closely related constructs, such as morale, are associated with organizational productivity (Koys, 2001; Ryan, Schmit, & Johnson, 1996) and that specific types of climate, such as service climate, are associated with other indicators of organizational effectiveness, such as customer satisfaction (e.g., Schneider, White, & Paul, 1998).

There are at least two theoretical positions that predict that the relationship between HRM and productivity should be contingent on organizational climate. As will be seen below, these two theoretical positions generate competing hypotheses regarding the form of this interaction.

The internal fit hypothesis. Theoretical analyses of the concept of internal fit among HRM practices (Baird & Meshoulam, 1988) provide one basis for developing predictions regarding the way in which HRM and climate interact. Researchers have argued that an HRM system is more likely to be effective if the individual practices are aligned with each other and are internally consistent. For example, Huselid (1995) argued that practices that enhance employee knowledge, skill, and ability, such as selection and training, should be more effective when combined with practices that enhance employee motivation, such as performance appraisal. Along similar lines, MacDuffie (1995) argued that the knowledge and skills developed by HRM are of little use, unless the workforce is motivated to contribute discretionary effort to work activities. Employees are only likely to allocate discretionary effort "if they believe that their individual interests are aligned with those of the company, and that the company will make a reciprocal investment in their well-being" (p. 201). These arguments are based on the widely held assumption that the relationship between ability and performance is stronger for people who are highly motivated (Vroom, 1964).

The internal fit hypothesis predicts that human-capital-enhancing HRM systems will be more effective when there is a favorable organizational climate. The firm should gain more from the use of an HRM system that enhances the knowledge, skill, and ability of its staff because employee motivation will be higher when there is a favorable climate.

Hypothesis 2: The positive relationship between human-capital-enhancing HRM systems and subsequent productivity will be stronger when there is a favorable organizational climate.

The limited capacity hypothesis. The internal fit hypothesis is based on three assumptions: (a) that human-capital-enhancing HRM systems enhance employee knowledge, skill, and ability; (b) that a favorable climate enhances employee motivation; and (c) that the knowledge, skill, and ability generated by human-capital-enhancing HRM systems interact positively with the motivation generated by climate.

At least two of these assumptions can be challenged. First, several reviews have concluded that evidence to support the assumption that knowledge, skill, and ability interact with motivation is limited and is mixed at best (e.g., Terborg, 1977). If the interaction between ability and motivation is weak or nonexistent, then human-capital-enhancing HRM systems should not interact synergistically with climate. Second, the prediction that HRM will interact synergistically with climate overlooks the arguments presented earlier suggesting that selection, induction, training, appraisal, compensation, and job design practices influence motivation, as well as knowledge, skill, and ability. If human-capital-enhancing HRM systems and climate both influence employee motivation, then motivation theories provide an alternative basis for generating predictions regarding the way in which they interact with each other. In this section, we show how resource allocation theories of motivation (Kanfer & Ackerman, 1989; Yeo & Neal, 2004) can be used to develop these predictions.

Resource allocation models assume that effort is a limited capacity resource. If effort is a limited capacity resource, then interventions designed to enhance motivation will have relatively little impact on performance if an individual is already allocating a large proportion of his or her discretionary effort to the task. These arguments suggest that if there is a favorable climate within an organization, then employees should already be allocating discretionary effort to their work tasks, and the organization should receive relatively little in the way of incremental benefit from the use of HRM systems that enhance motivation. Conversely, if there is a poor climate within an organization, then employees are unlikely to be allocating much discretionary effort to their work tasks. These organizations, therefore, may have more to gain from the use of HRM systems that enhance employee motivation because their employees may have greater spare capacity. In other words, a human-capital-enhancing HRM system may compensate for a poor climate. Similarly, a positive climate may compensate for the absence of a human-capital-enhancing HRM system. We term this final hypothesis the *limited capacity hypothesis*:

Hypothesis 3: The positive relationship between human-capital-enhancing HRM systems and subsequent productivity will be stronger when there is an unfavorable organizational climate.

Method

Sample

The initial sample consisted of 92 U.K. manufacturing firms that agreed to participate in the study. The majority of the firms were involved in the manufacture of metal goods and mechanical engineering (n = 43) or the manufacture of plastics and rubber (n = 25). The remaining firms were involved in a range of operations, including electronic engineering, the manufacture of motor vehicle parts, and instrument engineering (n = 24). The firms ranged in size from 60 to 1,769 employees (mean size = 239). All firms carried out operations on a single site. We focused on small to medium single-site firms to minimize the variability of HRM practices within firms. Huselid and Becker (2000) argued that the problems of variability in HRM practices within firms are likely to be greater in large firms, which are highly diversified. The mean size of firms in the current sample is between one and two orders of magnitude smaller than the mean size of firms in many previous studies (e.g., Gerhart, Wright, McMahan, & Snell, 2000 [mean size = 46,396]; Huselid, 1995 [mean size = 4,413]).

We were able to obtain matched HRM, competitive strategy, and productivity data for 70 of the firms in our sample. Forty-one firms also provided climate data. The climate data were collected from 3,939 individuals within these 41 companies. The companies that provided climate data did not differ from these other companies on prior productivity, size, union coverage, or industry sector. Previous analyses of this data set have shown that HRM practices predict productivity (Patterson, West, & Wall, in press) and that organizational climate predicts productivity (Patterson, West, & Warr, in press). However, these studies have not assessed whether HRM interacts with climate or strategy.

Measures

Organizational climate. Organizational climate was measured using a questionnaire assessing employee perceptions of their work environment (Patterson, West, Lawthom, & Maitlis, 2002). The questionnaire assessed four dimensions of climate common in the climate literature: participation, autonomy, welfare, and supportive leadership. Participants responded on a 4-point scale, ranging from (1) *definitely false* to (4) *definitely true*. Four items assessed the extent to which the organization was concerned for the welfare of employees (α = .91). A sample item was "This company cares about its employees." Six items assessed the extent of participation in decision making (α = .88). A sample item was "Management involve people when decisions are made that affect them." Five items assessed the extent to which employees had autonomy (α = .70). A sample item was "Management keep a tight reign on the way things are done around here." Five items assessed the extent of supportive leadership (α = .87). A sample item was "Supervisors here are really good at understanding people's problems." We carried out an exploratory factor analysis using scores on each of the subscales as dependent variables to assess whether each of the climate scales load onto a common factor. A single factor emerged from the analysis accounting for 51% of the variance. All of the subscales loaded onto this factor (participation: .83; autonomy: .40; welfare: .87; supportive

leadership: .68). For this reason, we combined the subscales to create a measure of general psychological climate. General psychological climate was calculated as the mean of the four subscales ($\alpha = .79$).

HRM practices. Our measure of HRM practices differs from that used in previous studies. In the past, most studies have used surveys assessing the extent to which the firms use specific practices. For example, studies have evaluated selection procedures by assessing whether firms use employment tests or not (Huselid, 1995), hire internally or externally (Delery & Doty, 1996), or hire on the basis of physical skills or problem-solving skills (Youndt et al., 1996). One of the difficulties that researchers have encountered is that there is a wide variety of different practices within each broad area of HRM, such as selection, that can be used. These different practices could be equally effective, making it difficult to combine them to form a composite measure. Delery (1998) has argued that researchers should attempt to directly measure the higher level properties of the HRM system, rather than inferring them from individual practices. For example, Snell and Dean (1992) assessed the extent to which a firm's staffing practices were selective, rather than assessing whether firms used ability tests, interviews, or biodata. Delery (1998) argues that even though these broader measures are subjective, they allow for better measurement of the underlying construct than narrower measures that are based on specific practices.

We interviewed the relevant managers within each firm and asked them to describe the HRM practices that they used. The interviewers then rated the quality of selection, training, performance appraisal, nonmonetary benefits, and work design within each firm. The aim was to assess the extent to which each firm used practices that subject matter experts believe should enhance the knowledge, skill, and motivation of its staff. These ratings were made on 5- or 7-point scales. The managers themselves rated the pay rates for shop floor personnel in relation to local competitors' rates. Managers were asked to respond on a 5-point scale (1 = *well below average*, 5 = *well above average*).

Following the recommendations of Huselid and Becker (2000), we selected the managers who had the best knowledge regarding the operation of each practice for interview. The primary interviewee was the manager responsible for HRM. These managers were asked to provide information regarding all practices except work design. Information regarding work design was obtained in an interview with the production manager. The interview questions were asked in relation to both shop floor and managerial employees. Our analysis focuses on the HRM practices used for shop floor personnel only. A number of authors have argued that analyses of the HRM-effectiveness link should focus on the practices used to manage a "core" group of employees because differences in the practices used to manage different groups of staff within the firm can obscure any effects (e.g., Arthur, 1994; Delery & Doty, 1996; Osterman, 1994).

There were a number of reasons for using an interview rather than a survey. First, as noted above, an interview allowed us to have subject matter experts evaluate the overall quality of different components of the HRM system. Second, the interviewers were able to compare the quality of HRM practices across firms and ensure that the ratings were made consistently. A naïve manager answering a survey might rate the practices used in his or her firm favorably because he or she does not know about practices that are more effective (e.g., selection prac-

tices with higher validity). Third, it was possible to ensure that the respondents understood what they were being asked, follow-up issues, and check any inconsistencies in the information that was being provided. The interviewers also examined available documentation to provide convergent evidence regarding these practices. The interviewers, therefore, had two sources of information regarding HRM practices to base their assessments on, allowing us to address the problems associated with single-informant designs (Gerhart et al., 2000). Finally, 15 of the interviews were conducted in pairs, allowing us to assess the interrater reliability using the intraclass correlation (ICC) (Shrout & Fleiss, 1979), for each of the items. The ICC values varied from .96 to .98 and had a mean of .97. The only item for which ICC could not be calculated was performance appraisal. The ICC value for performance appraisal could not be computed because this variable was rated after the interview, and the interviewers discussed their ratings to resolve any disagreements.

We used the procedure followed by MacDuffie (1995) and Youndt et al. (1996) to create an overall index reflecting the extent to which each firm used a human-capital-enhancing HRM system. There were two reasons for using an overall index. First, a number of authors have argued for the use of measures that reflect properties of the HRM system as a whole, rather than the individual practices (e.g., Huselid, 1995). Second, using a single index of HRM enhances the parsimony of the analysis and reduces the number of interaction terms that are tested. However, it is possible that the use of an overall index may mask differences among the components of the HRM system. For this reason, we also carried out separate follow-up analyses for each component.

The HRM index was created by standardizing the six component variables described above and averaging the standard scores. This index assumes that a low score on any one variable can be compensated for by a high score on any other. A multiplicative index was not appropriate because an extreme score on any one variable would exert a disproportionate influence on the index as a whole (MacDuffie, 1995), and we had no basis for predicting on an a priori basis whether the items within the index were substitutes for each other or interacted synergistically (Delery, 1998).

Competitive strategy. Competitive strategy was also assessed by interview. The primary interviewee was the CEO. The CEOs were given a description of a set of competitive strategies derived from Porter (1980): innovative differentiation, product differentiation, service differentiation, and cost leadership. They were then asked to indicate which of those descriptions most closely matched their predominant business strategy. Respondents were able to choose more than one option.

Productivity. Productivity was measured in the 3 years prior to the study (Time 1) and the year after the study (Time 3). It was calculated by dividing firm labor productivity by sector-level productivity and taking the logarithm of this result. Firm labor productivity was calculated as follows:

$$P = \frac{\left(p + d + i + s \Big/ ppi \right)}{n},$$

where *P* is firm labor productivity, *p* is pretax profits, *d* is depreciation, *i* is interest payable, *s* is staffing cost, *ppi* is the producer price index, and *n* is the number of employees in the firm. Sector-level productivity and the producer price index were taken from the Monthly Digest of Statistics (London).

Control variables. Control variables included productivity at Time 1, company size, union coverage, industry sector, environmental uncertainty, environmental hostility, and technology. Company size was calculated as the logarithm of the number of employees. Union coverage was calculated as the proportion of employees belonging to a union. Industry sector was assessed using dummy variables coding for membership of the engineering (1 = engineering, 0 = nonengineering) and plastics (1 = plastics, 0 = nonplastics) sectors. Environmental uncertainty was assessed by seven items, assessing factors such as the rate of obsolescence of products, the predictability of competitor's actions, and the rate of change in product or production processes. Environmental hostility was assessed by three items: relations with competitors, level of entry barriers in market, and concentration of industry. CEOs were asked to respond to the uncertainty and hostility questions on a 7-point scale (1 = *very slow*, *easy to predict*, *very cooperative*, etc.; 7 = *very high*, *very unpredictable*, *very hostile*, etc.). The use of advanced manufacturing technology was rated by the interviewers on the basis of information provided by the production or engineering manager. The interviewers assessed the extent to which the firm used seven types of computer-based technologies including computer–numerically controlled machines, computer-aided design, and flexible manufacturing systems (1= *not at all*, 7 = *to a very great extent*).

Procedure

The interviews were conducted on-site, with senior managers and directors during 1 to 2 days. Information on company size and union coverage was obtained during the interview with the CEO, whereas the productivity data were taken from company financial and management accounts. There were four interviewers. Each interviewer made their ratings independently and subsequently compared their ratings to resolve differences when the interviews were conducted in pairs. All interviewers were qualified industrial and organizational psychologists, who held a master's degree or better and had received a minimum of 2 weeks of training in the administration of the interview schedule. The training incorporated (a) familiarization with the theoretical issues underlying the research, (b) interviewing skills updating, (c) establishing consensual agreement about the purposes and content of each question, (d) establishing consensual agreement about the interpretation of various answers, (e) methods for rating answers, (f) the logistics of the interviewing process, and (g) ethical issues to do with anonymity and confidentiality. The training took places in group sessions, which all interviewers attended during the course of the 2 weeks.

The climate data were collected by questionnaire after the interviews. All employees were surveyed in companies with less than 500 employees. For companies with more than 500 employees ($n = 4$), a 60% random sample was taken.

Data Aggregation

The current study examined climate, strategic orientation, HRM, and productivity at the organizational level of analysis. The climate data, therefore, had to be aggregated to the organizational level. The level of within-organization agreement in climate perceptions was evaluated using the $r_{WG(J)}$ statistic (James, Demaree, & Wolf, 1984). The mean $r_{WG(J)}$ value for each subscale was as follows: welfare (.76), participation (.81), autonomy (.84), and supportive leadership (.83). The mean across all scales was .81. These values are greater than the recommended minimum and justify aggregation to the organizational level.

Results

The hypotheses were tested using a series of hierarchical multiple regression analyses. All variables were converted to z scores prior to entry in the equation and before calculating the interaction terms to minimize the effects of multicollinearity (Aiken & West, 1991). Table 1 shows the means and correlations of the independent variables, dependent variables, and control variables included in these analyses.

The first analysis tested whether competitive strategy moderates the relationship between the use of a human-capital-enhancing HRM system and productivity (Hypothesis 1). Separate analyses were carried out for each strategy. Time 3 productivity was used as the dependent variable in these analyses. Time 1 productivity, company size, union coverage, industry sector, environmental uncertainty, environmental hostility, and technology were entered as control variables at Step 1, HRM and strategy were entered at Step 2, whereas the relevant interaction term was entered at Step 3. By controlling for Time 1 productivity, this analysis effectively assesses the effects of strategy and HRM on changes in productivity. As can be seen in Table 2, the measures of competitive strategy did not moderate the relationship between HRM and subsequent productivity. None of the interaction terms were significant.

The second analysis tested whether organizational climate moderates the relationship between the use of a human-capital-enhancing HRM system and productivity (Hypotheses 2 and 3). Data screening revealed an outlier on the HRM × Climate interaction term ($z = 4.0$). This case was removed from the analysis. Time 3 productivity was used as the dependent variable. The control variables were entered at Step 1. HRM and climate were entered at Step 2, whereas the interaction term (Climate × HRM) was entered at Step 3. As can be seen in Table 3, the main effect for HRM was significant, and there was a negative interaction between HRM and climate. The relationship between the use of a human-capital-enhancing HRM system and Time 3 productivity was stronger when the climate was unfavorable. These results confirm the limited capacity hypothesis (Hypothesis 3) and disconfirm the internal fit hypothesis (Hypothesis 2).

A series of follow-up analyses were carried out to identify the specific practices that were interacting with organizational climate and to assess whether the interactions for specific practices were in the same direction as the interaction term involving the overall index. These analyses were identical to the preceding analysis, except that the measure assessing each individual practice was entered together with climate at Step 2, and the interaction term was entered at

Table 1
Means, Standard Deviations, and Intercorrelations of Control Variables, Independent Variables, and Dependent Variables

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Climate	2.46	0.20														
2. Innovative differentiation	0.32	0.47	.22													
3. Product differentiation	0.49	0.50	.01	.18												
4. Service differentiation	0.63	0.49	–.08	–.12	–.02											
5. Cost leadership	0.21	0.41	–.28	–.04	–.24	–.06										
6. HRM index	0.00	0.63	.40*	–.01	.28*	–.03	–.34*									
7. Time 1 productivity	2.76	0.43	.11	.26*	.08	–.03	–.21	.40*								
8. Time 3 productivity	2.57	0.47	.42*	.17	.08	.08	–.29*	.48*	.68*							
9. Union coverage	41.90	41.66	–.14	.03	.00	–.18	.07	–.13	–.22	–.25*						
10. Size	5.21	0.68	.23	.08	–.03	–.17	–.03	.19	.16	.08	.11					
11. Sector (engineering)	0.48	0.50	–.17	.12	.12	.04	.08	–.17	–.22	–.41*	.28*	–.07				
12. Sector (plastics)	0.26	0.44	.13	–.12	–.21	.04	.07	.05	.11	.28*	–.15	–.02	–.65*			
13. Hostility	3.94	1.21	–.15	–.17	–.06	.12	.17	–.12	–.13	–.19	–.17	–.17	.06	.08		
14. Uncertainty	3.27	0.88	.02	.07	.06	.15	–.03	.21	–.07	.01	.07	–.04	.04	–.08	.02	
15. Technology	1.83	0.55	.18	.07	.07	–.01	–.07	.25*	.13	.17	.08	.11	.23	–.20	–.01	.14

Note: HRM = human resource management. For correlations involving climate, $39 < n < 42$. For all other correlations, $68 < n < 71$.
*$p < .05$

Table 2
Results of the Regression Analysis Testing for Interactions Between Competitive Strategies and HRM

	Innovative Differentiation			Product Differentiation			Service Differentiation			Cost Leadership		
	Step			Step			Step					
	1	2	3	1	2	3	1	2	3	1	2	3
Beta												
Time 1 productivity	.56*	.49*	.48*	.56*	.51*	.51*	.56*	.51*	.50*	.56*	.50*	.49*
Union coverage	–.06	–.05	–.05	–.06	–.04	–.05	–.06	–.02	–.02	–.06	–.04	–.07
Size	–.06	–.09	–.09	–.06	–.09	–.09	–.06	–.07	–.08	–.06	–.08	–.08
Sector (engineering)	–.26*	–.23†	–.22†	–.26*	–.23†	–.23†	–.26*	–.24*	–.25*	–.26*	–.22†	–.21†
Sector (plastics)	.08	.09	.09	.08	.08	.08	.08	.07	.07	.08	.10	.09
Hostility	–.12	–.10	–.10	–.12	–.10	–.10	–.12	–.11	–.11	–.12	–.10	–.13
Uncertainty	–.03	–.07	–.07	–.03	–.07	–.07	–.03	–.09	–.10	–.03	–.07	–.08
Technology	.19*	.14	.14	.19*	.14	.14	.19*	.14	.14	.19*	.14	.11
Strategy		.06	.06		.00	.00		.12	.12		–.10	.00
HRM index		.23*	.24*		.22*	.22*		.22*	.22*		.19†	.22*
Strategy × HRM			.05 (Hypothesis 1)			–.01 (Hypothesis 1)			–.04 (Hypothesis 1)			.16 (Hypothesis 1)
Adjusted R^2	.51	.54	.53	.51	.54	.53	.51	.55	.54	.51	.54	.56
R^2 Δ		.04	.00		.04	.00		.05	.00		.04	.02
F Δ	9.863*	2.808	0.324	9.863*	2.566	0.011	9.863*	5.575*	0.225	9.863*	3.108	2.787
df	8, 60	2, 58	1, 57	8, 60	2, 58	1, 57	8, 60	2, 58	1, 57	8, 60	2, 58	1, 57

Note: Dependent variable = Time 3 productivity. HRM = human resource management.
†$p < .1$
*$p < .05$

Table 3
Results of Regression Analyses Testing Whether Climate Moderates the Relationship Between HRM Practices and Productivity

	Step		
	1	2	3
Beta			
Time 1 productivity	.41*	.32*	.28*
Union coverage	–.10	–.15	–.11
Size	–.08	–.15	–.21†
Sector (engineering)	–.28	–.14	–.32†
Sector (plastics)	.34†	.32†	.25†
Hostility	–.18	–.17	–.29†
Uncertainty	–.09	–.14	–.12
Technology	.42*	.26†	.22†
Climate		.13	.05
HRM index		.32*	.29*
Climate × HRM			–.33* (Hypotheses 2-3)
Adjusted R^2	.49	.59	.66
R^2 Δ		.10	.06
F Δ	5.592*	4.705*	6.816*
df	8, 30	2, 28	1, 27

Note: Dependent variable = Time 3 productivity. HRM = human resource management.
†$p < .10$
*$p < .05$

Step 3. The interaction term was calculated by multiplying each firm's score for that specific practice by their score for climate. These results are shown in Table 4. As can be seen in Table 4, two practices (training and comparative pay) interacted negatively with climate. The remaining interactions were not significant.

Discussion

The current study makes a number of contributions to our understanding of the way in which organizational climate, competitive strategy, and HRM practices relate to productivity. These are discussed below.

This is the first study to examine whether the relationship between HRM and productivity is contingent on organizational climate. The results show that employee perceptions of organizational climate do moderate the relationship between the use of a human-capital-enhancing HRM system and productivity and that this interaction is negative. As predicted by the limited capacity hypothesis, the relationship between subject matter experts' ratings of HRM and subsequent productivity is stronger for firms with a poor climate. According to the limited capacity hypothesis, climate and HRM both influence employee motivation. For this reason, they may compensate for each other. The correlation between HRM and productivity should be rel-

Table 4
Follow-Up Analyses Testing for Interactions Between Organizational Climate and Individual HRM Practices

	Selection Step		Training Step		Appraisal Step		Pay Step		Benefits Step		Work Design Step	
	2	3	2	3	2	3	2	3	2	3	2	3
Beta												
Time 1 productivity	.37*	.36*	.39*	.34*	.43*	.44*	.42*	.36*	.45*	.46*	.30*	.34*
Union coverage	–.09	–.09	–.16	–.10	–.09	–.09	–.12	–.13	–.08	–.08	–.10	–.06
Size	–.16	–.16	–.04	–.07	–.11	–.10	–.16	–.26*	–.09	–.10	–.06	–.07
Sector (engineering)	–.15	–.16	–.16	–.23	–.22	–.22	–.19	–.31*	–.22	–.26	–.34†	–.40*
Sector (plastics)	.38*	.38*	.37*	.32*	.29	.29	.31†	.15	.33†	.31	.34†	.31†
Hostility	–.17	–.18	–.24†	–.34*	–.11	–.10	–.17	–.24*	–.14	–.15	–.12	–.13
Uncertainty	–.10	–.09	–.10	–.14	–.14	–.14	–.15	–.22*	–.10	–.10	–.16	–.14
Technology	.37*	.36*	.27†	.26*	.33*	.33*	.31*	.17	.34*	.35*	.38*	.36*
Climate	.11	.11	.17	.14	.18	.18	.26*	.32*	.22†	.20	.16	.12
HRM practice	.29*	.28*	.25†	.25*	.11	.09	.25*	.23*	–.03	–.02	.23	.16
Climate × HRM		–.04		–.35*		.03		–.38*		–.06		–.17
Adjusted R^2	.59	.57	.57	.69	.52	.50	.58	.69	.51	.50	.62	.63
R^2 Δ	.10	.00	.08	.10	.05	.00	.09	.09	.04	.00	.08	.02
F Δ	4.420*	0.001	3.636*	12.058*	1.920	0.001	4.181*	10.872*	1.597	0.138	3.153†	1.434
df	2, 28	1, 27	2, 28	1, 27	2, 28	1, 27	2, 28	1, 27	2, 28	1, 27	2, 22	1, 21

Note: Dependent variable = Time 3 productivity. HRM = human resource management.
†$p < .10$.
*$p < .05$.

atively weak in firms that have a positive climate because the employees in these firms should be working at full capacity. It is only when there is a poor climate that we would expect a strong correlation between HRM and productivity because it is these employees that should have the greatest amount of spare capacity.

A related explanation is that the negative interaction may reflect a ceiling effect. The relationship between the use of a human-capital-enhancing HRM system and future productivity may have been weaker for firms with a favorable climate because these firms were already performing well, and there was less scope for improvements in productivity.

Some aspects of the limited capacity argument may also be analogous to arguments made about the positive relationship that is sometimes observed between unionization and productivity. It has been argued that under some circumstances, unions may enhance productivity by compensating for poor management practices and fostering collective input (Cooke, 1994; Freeman & Medoff, 1984; Guthrie et al., 2002). The current results suggest that organizational climate might play a similar role.

The results do not support the internal fit hypothesis. Most analyses of internal fit assume that practices that enhance the knowledge and skill of employees will work best when employees are highly motivated (e.g., Huselid, 1995; MacDuffie, 1995). It could be argued that the use of an overall index of the HRM system is inappropriate because it may mask differences among the individual practices in the way that they interact with climate. Using Huselid's (1995) logic, it could be argued that practices that primarily influence ability (e.g., selection and training) should interact positively with climate, whereas practices that primarily influence motivation (e.g., performance appraisal and work design) should interact negatively with climate. The current results do not support this argument. None of the HRM practices interacted positively with climate.

These results also have implications for models of HRM that assume a causal link between HRM practices and climate. A number of authors have argued that HRM practices help to shape organizational climate and that climate, in turn, may influence productivity. This argument suggests that the relationship between HRM and productivity should be mediated by organizational climate rather than moderated by it (e.g., Ferris et al., 1998; Rogg, Schmidt, Shull, & Schmitt, 2001). The current results do show that organizational climate was positively correlated with the use of a human-capital-enhancing HRM system and with subsequent productivity (see Table 1). However, we could find no evidence to support the claim that climate fully or partially mediates the relationship between HRM and productivity. When the independent variable (HRM) and mediator (climate) were entered simultaneously, the independent variable was significant, whereas the hypothesized mediator was not (see Table 3). These results do not meet the basic criteria for mediation (Baron & Kenny, 1986).

Finally, the results do not support the prediction that competitive strategy will moderate the relationship between HRM and productivity. Our data show that the use of some competitive strategies was correlated with the HRM index (see Table 1). Firms attempting to create a competitive edge through quality, superior product performance, and by offering features not available from competitors were more likely to use a human-capital-enhancing HRM system. This replicates previous findings in the field and provides evidence for the validity of our measures. However, there was no evidence to suggest that firms pursuing product differentiation

achieved lower rates of growth in productivity if they scored poorly on the HRM index or that cost leaders achieved lower rates of growth in productivity if they scored highly on the HRM index. Our findings are consistent with those reported by Huselid (1995), who also used objective measures of productivity. One explanation for the failure to find an interaction between strategy and HRM in the current study could be that the association between strategy and HRM reduced the power to detect any interactions. However, the correlations between the strategy measures and the HRM index were smaller than the correlation between climate and HRM, suggesting that this explanation is unlikely.

Limitations of the Present Research

There are a number of strengths and limitations of the current study that should be considered when interpreting the results. The key strength of this study was the use of multisource data. Our findings, therefore, are not confounded by common method variance. A second strength was the collection of productivity data at multiple points in time. A third strength is the fact that we controlled for a wide range of potential confounding factors.

The major limitation of the current study was sample size. With only 41 firms providing climate data, we only had sufficient power to detect large effect sizes for the analyses involving climate. With these levels of power, care needs to be taken when interpreting effects that do not reach significance and in generalizing to other samples or populations. However, the lack of power does not affect the interpretation of effects that do reach significance. The interaction between climate and HRM reached conventional levels of significance, even though we had a small sample. Furthermore, we had 70 firms providing strategy data, giving us greater power to detect effects involving strategy. At a minimum, our results suggest that if an interaction existed between strategy and HRM, the effect was smaller than the interaction between climate and HRM.

A second limitation of the study was the collection of the climate, strategy, and HRM data at a single point in time. If climate, strategy, and HRM were assessed at multiple points in time, then it would be possible to assess the direction of causality for the relationships among these three variables. Our results do not allow us to draw conclusions about the direction of these relationships. However, by collecting productivity at multiple points in time, we can rule out a number of alternative explanations for the association between HRM and productivity, and the interaction between HRM and climate. For example, one alternative explanation for the association between HRM and productivity could be that firms with high levels of productivity chose to invest in human-capital-enhancing HRM practices. Similarly, an explanation for the negative interaction between climate and HRM might be that poor productivity causes firms with a poor climate to reduce their investment in HRM practices. Alternatively, poor productivity might create a poor climate if firms do not use a human-capital-enhancing HRM system. Our results are not consistent with these explanations because we have controlled for prior productivity.

A third limitation was the absence of measures to assess the mechanisms through which a human-capital-enhancing HRM system might influence productivity. The theoretical arguments presented in the current article assume that HRM practices enhance employee knowl-

edge, skill, ability, and motivation, which in turn enhance job performance. These potential mediators were not included in the current study.

A final limitation concerns the way in which HRM practices were measured and the results are interpreted. In many respects, the use of subjective ratings of HRM practices, based on interview data, is a strength of the design. However, there are three potential limitations with this approach that should be considered, as explained below.

First, it is possible that the ratings of HRM quality may have been confounded by other sources of information. For example, it is possible that the raters may have been influenced by the history of the firm's success, current productivity, or progress that has been made in implementing improvements. To minimize these effects, we made sure that the productivity data were collected after the interviews. Furthermore, the current data show that (a) the correlation between the HRM index and subsequent productivity is higher than the correlation between the HRM index and prior productivity, and (b) the HRM index predicts subsequent productivity, after controlling for prior productivity. We would not expect this pattern of results if the ratings were heavily biased by historical factors.

Second, it is possible that the raters may have been influenced by different implicit theories of HRM effectiveness. For example, the managers were asked whether performance appraisals are linked to pay. It is possible that some raters may have regarded a linkage as good, whereas others may have regarded a linkage as bad. However, the interviewers were given extensive training with the interview schedule. This training was designed to ensure that they had a common understanding of the schedule and would rate consistently. The interrater reliability was high, suggesting that the raters did not differ in the criteria they used to assess the quality of HRM practices.

Finally, it is important to note that the HRM ratings focused on the global properties of each practice. Thus, the focus of the current study was on the extent to which purportedly best-practice approaches to HRM depend on climate and strategy. The ratings obtained in the current study do not provide information regarding the way in which each practice was implemented. Our results, therefore, do not provide guidance with respect to the way in which these practices should be implemented (e.g., whether firms should use behaviorally oriented or results-oriented performance appraisals) and whether the approach to implementing these practices should be modified to accommodate the firm's climate or competitive strategy.

Conclusion

In summary, these results show that organizational climate and competitive strategy are associated with HRM and provide an important empirical verification of the claim that the fit between the HRM system and climate is associated with changes in productivity over time. However, the nature of the interaction between HRM and climate is very different to what is commonly assumed. It is often assumed, both by researchers and practicing managers, that HRM practices that are designed to enhance the knowledge, skill, ability and motivation of staff will be more effective when there is a positive organizational climate. The current results show that the correlation between HRM and productivity is stronger when there is a poor climate. These findings are consistent with a theoretical perspective, based on resource alloca-

tion theories of motivation. One of the practical implications of this perspective is that it is the firms with a poor climate that may have the greatest need for human-capital-enhancing HRM systems. Paradoxically, it is these firms that are the least likely to use these systems.

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