

# THE EFFECTS OF SLACK RESOURCES AND ENVIRONMENTAL THREAT ON PRODUCT EXPLORATION AND EXPLOITATION

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**In a U.S. sample of nonprofit professional theaters, we examine how slack resources interact with environmental threat appraisal to influence product exploration and exploitation. We find systematic variation depending on the extent to which a resource is rare and absorbed in operations, and the extent of perceived environmental threats. Absorbed, generic resources are associated with increased exploitation and decreased exploration. Unabsorbed resources, both generic and rare, result in higher exploration and lower exploitation, but only when perceived environmental threat is high. Overall, results reveal pragmatic decision making balancing the benefits of superior strategic position against the risks of jeopardizing viability.**

The overall strategic emphasis of an organization is reflected in investments of resources in activities and processes that promote exploration or exploitation (Siggelkow & Levinthal, 2003). Exploration creates novel competencies that enable ongoing innovation and generally results in superior long-term returns (Geroski, Machin, & Van Reenen, 1993). These benefits are balanced by the higher level of risk inherent in exploratory activities, which require significant investments with uncertain payoffs (Gupta, Smith, & Shalley, 2006). Exploitation creates value through existing or minimally modified competencies that sustain long-term viability following successful exploration. Successful exploitation provides a buffer from the shocks of exploration and entails less risk than exploration (Gatignon, Tushman, Smith, & Anderson, 2002).

Past research has reported a positive relationship between slack resources and a variety of exploration activities, including innovation (Nohria & Gulati, 1996), risk taking (Singh, 1986), and adaptation (Kraatz & Zajac, 2001). However, other evidence suggests that the presence of slack can

lead to cautious decision making and risk aversion, which reduce exploration (Mishina, Pollock, & Porac, 2004) and increase incremental adaptation, or exploitation (Tan & Peng, 2003). As these divergent findings suggest, whether organizational slack promotes exploration or exploitation remains an unsettled issue.

In this research, we argue that the effects of slack on exploration and exploitation are best understood by focusing on specific properties of a slack resource and the environmental context facing an organization. We believe that the extent to which a slack resource is rare and the extent to which it is absorbed determine its interpretation and subsequent effects on product exploration and exploitation. We build on prospect theory and the threat-rigidity hypothesis to develop opposing explanations for the moderating influence of environmental threat (Audia & Greve, 2006; Chattopadhyay, Glick, & Huber, 2001). We propose that the framing effects of specific forms of slack resources determine whether organizational decisions conform to predictions grounded in prospect theory or to predictions stemming from the threat-rigidity thesis.

The results of the study help sort through opposing views in two key areas of research, namely, the effects of slack resources on organizational decision making and organizational responses to environmental threat. By systematically differentiating among specific forms of resource endowments, we

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generate clearer insights into the influences, at times conflicting, of slack resources on product exploration and exploitation. Our results indicate that the effects of environmental threat are largely contingent on the nature of available resources. We build on these results to offer implications for organizations seeking to align product exploration and exploitation with strategic intent.

We implemented this research using a sample of nonprofit professional theaters in the United States, which represent a \$1.4 billion industry (Voss, Voss, Shuff, & Taber, 2004). Nonprofit professional theaters face unique tensions between an institutional ethic emphasizing artistic values and pressure to sustain financial viability. These countervailing demands create challenges in balancing artistic experimentation, with its attendant uncertainties, against capitalizing on known artistic successes assuring more predictable returns (Glynn, 2000; Voss, Cable, & Voss, 2006). This conflict between strategic emphases provides an ideal context for studying organizational exploration and exploitation.

#### LINKING SLACK RESOURCES, ENVIRONMENT, AND PRODUCT EXPLORATION AND EXPLOITATION

According to March, "Exploration includes things captured by terms such as search, variation, risk taking, experimentation, play, flexibility, discovery, innovation," and "Exploitation includes such things as refinement, choice, production, efficiency, selection, implementation, execution" (1991: 71). Adapting these ideas, we define *product exploration* as an organizational emphasis on introducing radical innovations that extend existing product competencies. *Product exploitation* is defined as an organizational emphasis on marketing existing or incrementally modified products that capitalize on existing product competencies. The dominant view in the literature (March, 1991, 2006) is that emphases on exploration and exploitation reflect trade-offs made to accommodate organizational limitations. Trade-offs can result from constraints in allocating limited resources over these two major sets of activities and from the challenges associated with managing divergent cognitive models and organizational routines (Smith & Tushman, 2005). These trade-offs may even reflect negative reciprocal causality. A focus on immediate returns and lower risk of failure can increase exploitation, driving down exploration, whereas focusing exclusively on exploration can lead to difficulty in exploiting the outcomes of successful exploration (March, 2006).

An emerging view suggests that organizations can adopt structural and cultural configurations to minimize and even overcome the need for trade-offs between exploration and exploitation (Gibson & Birkinshaw, 2004; Gupta et al., 2006). Furthermore, exploration and exploitation may involve separate operational domains rather than opposite ends of a single decision continuum (He & Wong, 2004; Lavie & Rosenkopf, 2006). For example, exploration may entail activities and processes associated with new-product development, while exploitation may involve a distinct set of activities associated with modifying an existing product bundle. Recognizing such a contingent view of organizational trade-offs, we propose separate hypotheses for product exploration and exploitation.

In the following section, we propose a typology of slack resources and then develop hypotheses that predict different organizational responses to different types of slack on the basis of their position within this typology. We then invoke prospect theory and threat-rigidity arguments to predict alternative decision-making patterns within the same organization in the face of environmental exigencies. These contingency hypotheses are consistent with research suggesting reflexivity in organizational decision making (Steensma & Corley, 2001).

#### Slack Resources

Slack refers to the stock of excess resources available to an organization during a given planning cycle (Nohria & Gulati, 1996; Sharfman, Wolf, Chase, & Tansik, 1988). Slack can accrue as a result of organizational performance in prior periods, as a planned buffer, or as a result of poor planning. The literature is divided in predicting the effects of slack on exploration and exploitation. One view suggests that slack enables organizations to divert attention away from "fire fighting" to focus instead on expansive thinking and risky, innovative ventures with potentially high payoffs (Nohria & Gulati, 1996). For example, slack financial resources can facilitate investments in radical product innovations and protect organizations from potential depletion of resources if such efforts fail (O'Brien, 2003). The opposing view is that high slack leads to risk aversion, which results in low exploration, passivity in organizational responses, and increased motivation to capitalize on known competencies through exploitation (Levinthal & March, 1993). This perspective suggests that organizations with low levels of resources are more likely to explore, especially when operating in competitive environments (Katila & Shane, 2005).

We believe that these conflicting logics can be

resolved by considering the rarity and absorption of a slack resource. Because rare resources are difficult to replace, managers' motivation to deploy them is low, and they likely prefer to conserve them if possible. Because absorbed resources are already committed to a specific use, managers' ability to (re)deploy them is low. Thus, the rarity and the absorption of a slack resource lead, respectively, to motivational and structural constraints on its deployment in risky, exploratory activities.

**Resource rarity.** Organizations depend on valued resources to sustain ongoing processes and long-term viability (Barney, 1991; Christensen & Bower, 1996). Some resources are relatively generic and commonly available. Rare and valued resources, which are central to creating and sustaining competitive positions, are scarce and unique. Resources such as raw material and people may be rare because of limited availability in factor markets. Other forms of resources are rare because they can only be accumulated within organizations through time-consuming, effortful, and complex processes. For example, "social capital" is a rare resource that is accumulated through complex social processes and along unique historical trajectories (Barney & Hansen, 1994). Few organizations succeed in creating abundant stocks of rare resources, given the tacit and extended processes involved in their creation.

**Resource absorption.** Resources also vary in the extent to which they are absorbed in ongoing activities. Unabsorbed resources are currently uncommitted and can be redeployed easily within organizations (Sharfman et al., 1988; Tan & Peng, 2003). Examples include cash or credit lines that are available for use for a variety of purposes. Organizations also possess absorbed resources that are tied to current operations. Examples include stocks of dedicated investments such as production capacity and specialized skilled labor (Greve, 2003). Structural constraints limit the recovery of excess levels of such resources and their redeployment for novel or exploratory activities (Mishina et al., 2004). Excess absorbed resources may even be viewed as costs.

Figure 1 presents a map of four types of slack resources that result from combining these two resource characteristics: financial, customer relational, operational, and human resources. We now propose hypotheses linking the four resource types to product exploration and exploitation.

**Financial Slack: Generic and Unabsorbed**

Financial slack refers to the level of liquid assets, such as cash on hand, that is available to an organ-

**FIGURE 1**  
**Mapping Resource Characteristics to Specific Measures of Slack**

		Resource Absorption	
		Low	High
Resource Rarity	Low	Financial Slack	Operational Slack
	High	Customer Relational Slack	Human Resource Slack

ization (Kraatz & Zajac, 2001). Though valuable, financial slack is a generic and therefore less rare resource. Financial resources, representing no particular stakeholder, can be generated internally via multiple means or garnered from external sources in relatively short order through a variety of market mechanisms (Dierickx & Cool, 1989). Perfectly divisible for allocation to multiple activities, financial slack is the least absorbed form of slack and the easiest to redeploy (Greve, 2003; Miller, 2003).

Organizations are not constrained in their motivation or ability to deploy financial slack because it is generic and unabsorbed. There should thus be little motivation to conserve and a greater willingness to deploy financial slack to risky exploration that can strengthen an organization's long-term position. The unabsorbed nature of financial slack also implies a lack of structural constraints; it can be readily allocated to a range of exploration activities. In keeping with previous research (Mishina et al., 2004; Nohria & Gulati, 1996; Tan & Peng, 2003), we expect that higher financial slack will be associated with increased product exploration entailing unpredictable investments and uncertain near-term returns. Lower levels of financial slack will increase the pressure to conserve rather than deploy slack, to ensure its availability for ongoing activities and organizational viability. Moreover, low levels of slack may be seen as insufficient for successful product exploration.

As financial slack becomes scarce, organizations likely turn to existing product competencies, introducing product variants with minimal improvements and incremental repositioning (Levinthal & March, 1993). Low levels of financial resources are sufficient for product exploitation requiring mod-

est investment while promising small but certain returns. With increasing financial slack, the modest returns promised by product exploitation are less likely to attract investment. Consequently, organizations with more financial slack should devote less attention and fewer resources to product exploitation. In view of these arguments, we propose that higher levels of financial slack are positively related to product exploration and negatively related to product exploitation.

*Hypothesis 1a. The association between financial slack and product exploration is positive.*

*Hypothesis 1b. The association between financial slack and product exploitation is negative.*

### **Customer Relational Slack: Rare and Unabsorbed**

To conceptualize customer relational slack, we extend the notion of social capital (Adler & Kwon, 2002; Nahapiet & Ghoshal, 1998) and the resource-based view of “relational resources” (Barney & Hansen, 1994; Wernerfelt, 1984). Relational slack refers to excess resources committed to an organization by specific relational stakeholders, including suppliers (Dyer & Singh, 1998), donors (Kraatz & Zajac, 2001), and board members (Hillman & Dalziel, 2003). We define customer relational slack as the slack attributable to relational, or committed, customers, who are valued resources providing tangible benefits to an organization. Compared to transactional, or one-time, customers, relational customers assure a predictable stream of revenues that facilitate efficiency in planning and bring down marketing expenditures (Sirdeshmukh, Singh, & Sabol, 2002). Moreover, the proportion of an organization’s revenues accruing from relational customers signals organizational worth to internal and external stakeholders. In sum, customer relationships translate to capital for the organization (cf. Adler & Kwon, 2002), and revenues accruing from relational customers are an indication of slack in customer relational capital.

We propose that customer relational slack is a relatively rare and unabsorbed resource. Typically, a small portion of customers are motivated to form relationships and, once formed, these relationships are difficult to sustain (Sirdeshmukh et al., 2002). Customer relational slack is built through painstakingly garnered reputation and trust (Adler & Kwon, 2002; Barney & Hansen, 1994). Competing firms cannot readily create customer relational slack owing to the socially imbued, time- and path-dependent processes that are required. Adding to its rarity, customer relational slack is not available for

appropriation from market sources (Barney, 1989; Dierickx & Cool, 1989). However, customer relational slack, measured as revenues from relational customers, is unabsorbed, so there are no structural constraints on redeploying it.

Although the availability of customer relational slack could foster product exploration (cf. Nootboom, Berger, & Noorderhaven, 1997), we argue that organizations are less motivated to deploy and risk their customer relational slack because of its rarity. Given the difficulty in building customer relational slack, managers will exercise caution in pursuing exploratory activities that may result in actual and reputation failures that could compromise relational capital. Instead, managers will protect such hard-earned and difficult-to-recoup resources (Gilbert, 2005). Furthermore, commitments to relational customers loom larger as customer relational slack increases, reducing willingness to stray from ongoing value-creating activities central to existing relationships (Christensen & Bower, 1996). All else being equal, high customer relational slack should be accompanied by low organizational adaptability and a focus on protecting hard-earned, hard-to-recoup resources. As a result, we propose a negative relationship between customer relational slack and product exploration, opposite to our predictions for financial slack.

On the other hand, we believe that slack derived from close customer relationships will promote an organizational focus on exploitation and improvement of current products. Exploitation and incremental improvement of existing products are in keeping with expressed expectations of relational customers (Voss, Montoya-Weiss, & Voss, 2006). Moreover, exploitation through tried and tested activities is less likely to place customer relational slack at risk. Thus, high customer relational slack will increase product exploitation.

*Hypothesis 2a. The association between customer relational slack and product exploration is negative.*

*Hypothesis 2b. The association between customer relational slack and product exploitation is positive.*

### **Operational Slack: Generic and Absorbed**

Operational slack derives from unused or underutilized operational resources, such as excess production capacity (Bourgeois, 1981; Greve, 2003; Tan & Peng, 2003). Because operational slack is neither difficult to obtain nor unique to a given organization, organizations should not perceive motivational constraints in deploying it. However,



because operational slack is absorbed and generally tied to a specific purpose within an organization, it is relatively difficult to reallocate to alternative uses in the near term. Operational slack also may be structurally constrained by other resources with which it coexists, further limiting the ability to isolate and redeploy it in other contexts (Mishina et al., 2004). Thus, in contrast to financial and customer relational slack, both of which are unabsorbed, operational slack cannot be readily deployed.

We believe that the absorbed nature of operational slack will exert a negative influence on exploration and a positive influence on exploitation. Organizations with high levels of absorbed, difficult-to-redeploy resources will focus on restricting losses by cutting back on exploration. In the face of sure losses, decision makers prefer alternatives that curtail losses over those promising further gains. Research on “mental accounting” refers to this relationship as the “reverse sunk-cost effect” (Zeelenberg & Van Dijk, 1997) or the “breakeven principle” (Thaler & Johnson, 1990). In such situations, managers gravitate toward options promising smaller but certain returns (“breakeven”) rather than options with larger but uncertain returns.<sup>1</sup> Extending this logic, we argue that high operational slack leads to risk aversion and reduced product exploration. Organizations will focus on squeezing out smaller but certain returns through well-known processes that rely on existing competencies and resources. Thus, high operational slack should result in higher product exploitation using existing operational resources.

*Hypothesis 3a. The association between operational slack and product exploration is negative.*

*Hypothesis 3b. The association between operational slack and product exploitation is positive.*

### **Human Resource Slack: Rare and Absorbed**

Human resource slack refers to specialized and skilled human resources that are rare and absorbed (Mishina et al., 2004). Competitive markets foster intense efforts to retain and protect skilled, specialized people who are central to creating long-term

competitive advantage (Barney, 1991). By limiting the ease with which skilled personnel can be acquired, these competitive efforts increase the rarity of human resource slack. Human resource slack also is absorbed because the resources are tied up in the organization’s current operations.

We argue that the rare and absorbed nature of human resource slack has a negative influence on product exploration and a positive influence on product exploitation. Human resources that are acquired and developed to build existing routines likely possess skills that are most applicable to incumbent product domains. As a result, they are less readily reallocated to exploration in novel contexts. Moreover, the absorbed nature of human resource slack makes it difficult to reallocate in the short term. Shifting human resources within organizations is structurally difficult and may face political hurdles that typically accompany decisions pertaining to skilled personnel (Mishina et al., 2004). Thus, as a result of its rare and absorbed nature, human resource slack should contribute negatively to exploration and positively to exploitation.

*Hypothesis 4a. The association between human resource slack and product exploration is negative.*

*Hypothesis 4b. The association between human resource slack and product exploitation is positive.*

### **Slack and Environmental Threat**

Opportunity and threat perceptions refer to managerial appraisals of the extent to which an organization’s operating environment promises losses versus gains (Staw, Sandelands, & Dutton, 1981). Prospect theory and the threat-rigidity hypothesis lead to opposing arguments about the effects of environmental opportunity and threat (cf. Chattopadhyay, Glick, & Huber, 2001; Fiegenbaum & Thomas, 1988). According to prospect theory, organizations facing the impending losses implied by threatening environments should embrace risk taking (Kahneman & Tversky, 1979). Because threats carry the potential to erode the organization’s strategic position, managers should increase investments in innovative competencies to counter threatening environments and their unpredictable outcomes. Moreover, because the perceived risk of the strategy under consideration is less salient when framed against a threatening rather than opportunity-laden environment, risk seeking rather than risk aversion is more likely in the face of environmental threat. If the environment is seen as

<sup>1</sup> Thaler and Johnson (1990) referred to the breakeven option as “risk taking.” In their study, the breakeven option is viewed relative to the “do nothing” option. In our study, we view the breakeven option (i.e., exploitation) as the risk-averse option relative to exploration.

more opportunity laden, organizations should be risk averse, lowering investments in risky ventures and relying instead on existing competencies as a sufficient response. Without compelling motivation, organizations are less likely to risk disruptions to ongoing operations by straying from known competencies.

The threat-rigidity perspective suggests the opposite response (Sitkin & Pablo, 1992; Staw et al., 1981). Because threats imply looming losses and a loss of control over operating decisions and outcomes, they should lead to risk aversion and a focus on protecting an organization's position (Dutton & Jackson, 1987). In the face of a threatening environment, an organization should reduce investments in innovative ventures and revert to tried and tested competencies with more predictable outcomes that limit potential losses. Favorable circumstances encourage inherently risky innovation and exploration because opportunity-laden environments heighten expectations of successful outcomes and promise greater control over the organization's situation (Staw et al., 1981). Thus, in this view, organizations perceiving environmental opportunity are more likely to exhibit higher levels of exploration.

We reconcile these alternative predictions by arguing that response to environmental threats is contingent on an organization's resource endowments, especially the level and nature of its slack resources. Organizations possessing unabsorbed forms of slack likely respond to threat through increased risk taking, in line with prospect theory's predictions; to counter or minimize the effects of threatening environments, organizations should invest (and risk) readily deployed slack in product exploration. However, a threatening environment combined with structurally constrained slack may heighten a perceived lack of control; as a result, organizations holding absorbed and hard-to-redeploy slack should enact rigid responses of retrenchment and risk aversion. As Dutton and Duncan (1987) suggested, organizations faced with a situation requiring an urgent response but lacking requisite resources likely adopt incremental change as a means of coping with, rather than countering, the exigency. We extend these arguments to propose interaction effects between each form of slack and environmental threat perceptions.

**Financial slack and environmental threat.** Because financial slack is a relatively generic, available, and unabsorbed form of slack, we extend prospect theory to propose that the positive effects of financial slack on product exploration and its negative effects on product exploitation are amplified when an environment is seen as threatening

(Chattopadhyay et al., 2001). Product exploration is an offensive action that can strengthen an organization's position, especially in turbulent environments (Miller, Lant, Milliken, & Korn, 1996). Organizations holding higher levels of financial slack likely perceive greater value in expending rather than protecting slack resources to ensure long-term survival. In the face of threat, organizations possessing sufficient financial slack will view exploitation—a defensive mechanism—as a less desirable option than exploration. Product exploitation is limited in its ability to counter environmental threats because it leaves an organization's strategic position largely unchanged. This logic leads to predicting a more positive influence of financial slack on product exploration and a more negative influence of financial slack on product exploitation when environmental threat is high.

Audia and Greve (2006) provided some support for this argument in a study examining strategic investments made when organizations are threatened by performance levels below aspiration. The authors argued that organizational size, a correlate of resource endowments, frames and moderates organizational risk taking in response to threat. They found that when faced with low performance, larger firms are more likely to increase risk taking as a means of reducing the aspiration-performance gap, in line with prospect theory. Thus, we offer:

*Hypothesis 5a. As an environment is perceived as more threatening, the association between financial slack and product exploration becomes more positive.*

*Hypothesis 5b. As an environment is perceived as more threatening, the association between financial slack and product exploitation becomes more negative.*

**Customer relational slack and environmental threat.** We argued that the rarity of customer relational slack imposes motivational constraints on its allocation to risky product exploration and increases investments in less risky forms of exploitation. This reluctance to place customer relational slack at risk should be especially evident when an organization's environment is munificent; however, in a threatening environment that jeopardizes long-term viability, we expect that organizations will reverse their protective stance. As perceptions of threat increase and survival considerations become more salient, organizations should be more willing to place customer relational slack at risk and invest in exploration (Shapira, 1995). Moreover, under threatening conditions, firms holding unabsorbed, readily reallocated resources are less

likely to invest in product exploitation. Activities that largely sustain the organizations in their current strategic positions are likely to be viewed as suboptimal under threatening conditions.

Research examining adoption of emerging technologies in the face of entrenched, incumbent technologies offers some evidence in support of these arguments. Gilbert (2005) reported that absent a threat, organizations were less likely to adopt an innovation for fear of jeopardizing their customer bases, choosing instead to focus on incumbent technologies. However, when faced with an external threat, the same organizations were willing to commit resources toward exploring the innovation, reversing their protective stance. Accordingly, we argue that environmental threat reduces the negative (positive) effect of customer relational slack on product exploration (exploitation); a strong interaction effect may even lead to a switch in sign.

*Hypothesis 6a. As an environment is perceived as more threatening, the association between customer relational slack and product exploration becomes less negative.*

*Hypothesis 6b. As an environment is perceived as more threatening, the association between customer relational slack and product exploitation becomes less positive.*

#### **Operational slack and environmental threat.**

Because the deployment of operational slack is structurally constrained, we expect a threatening environment to exacerbate concerns regarding potential losses. As threats increase, organizations saddled with a surfeit of absorbed operational slack over which they have limited control will perceive greater restrictions on their ability to explore. Rather than seeking the higher risk implicit in product exploration, these organizations will respond to a threatening environment according to the threat-rigidity logic by eschewing strategies that increase uncertainty (Chattopadhyay et al., 2001; Dutton & Duncan, 1987). Thus, threat perceptions should intensify the negative association between operational slack and product exploration. Threat perceptions also should intensify the positive relationship between operational slack and product exploitation, because exploitation is more closely aligned with activities in which operational resources are absorbed, and it is likely viewed as a more certain and controllable option.

*Hypothesis 7a. As an environment is perceived as more threatening, the association between operational slack and product exploration becomes more negative.*

*Hypothesis 7b. As an environment is perceived as more threatening, the association between operational slack and product exploitation becomes more positive.*

**Human resource slack and environmental threat.** Our arguments for the interaction between human resource slack and environmental threat parallel those presented for operational slack. Organizations possessing high levels of human resource slack should respond to a threatening environment according to the threat-rigidity logic (Chattopadhyay et al., 2001). Given the limited ability to redeploy this rare and absorbed resource, they will further reduce potentially uncertain and risky product exploration and increase their focus on known and more predictable product exploitation. As a result, each main effect should be positively moderated: under high versus low threat, the relationship between human resource slack and exploration (exploitation) should be more negative (positive).

*Hypothesis 8a. As an environment is perceived as more threatening, the association between human resource slack and product exploration becomes more negative.*

*Hypothesis 8b. As an environment is perceived as more threatening, the association between human resource slack and product exploitation becomes more positive.*

## **METHODS**

To test the hypotheses, we implemented a study using a sample of nonprofit professional theaters in the United States. Nonprofit professional theaters are involved in intensive, ongoing product development that can be characterized by its level of exploration or exploitation. They exploit established plays that have been previously produced but also serve as laboratories for creating new-to-the-world plays, which evolve via improvisation and exploration. During the time frame of this study (2003–04), nonprofit professional theaters were facing a challenging economic environment, partly as a consequence of the September 11 tragedy. Focus groups with managers suggested that the ever-present trade-offs between maintaining viability and serving the institutional ethic of innovation were particularly salient. Thus, the industry and time frame provided a unique context for examining product exploration and exploitation.

To mitigate common method bias, we combined survey measures of product exploration and exploitation with secondary measures of organizational

slack collected by Theatre Communications Group (TCG). As the largest service organization to the nonprofit professional theater industry in the United States, TCG collects annual fiscal and operating data from its member theaters and corroborates the reported data with external financial audits. The TCG survey provides objective measures such as attendance, revenue from various sources, net income, and balance sheet data. To control for heterogeneity, we included secondary measures that controlled for both market and organizational characteristics.

Our sampling frame was the 214 theaters that participated in the TCG survey for fiscal year (FY) 2003. With an average annual budget of \$4 million, these theaters tended to be larger than the average representative of the 1,274 nonprofit theaters that filed IRS form 990s in FY 2003 (Voss et al., 2004). We collected self-reported measures of environmental threat and product exploration and exploitation from managing directors at TCG theaters during FY 2004. As the person responsible for establishing and implementing strategic direction, the managing director of a theater represented the best internal informant for these constructs. Of the 214 managing directors contacted, 163 (76%) completed the survey. Table 1 presents descriptive statistics and a correlation matrix for the variables of interest, which we now describe in greater detail.

### Control Variables

We used four variables to control for organization-level and market-level heterogeneity. Data for the organization-level controls came from the TCG survey and included the following: *total revenue*, an objective measure of organizational size and

market performance; *net income*, an objective measure of financial performance; and the *number of world premieres in FY 2003*, a measure of prior product exploration activity. To control for market-level heterogeneity, we included the number of theaters within 30 miles of the center of the city in which a sampled theater was located; *Money* magazine compiled these data for its 2004 annual ranking, the “Best Places to Live in America” (see <http://money.cnn.com/best/bplive/>).

### Objective Measures of Organizational Slack

We used objective data from the TCG survey to operationalize organizational slack. *Financial slack* was a theater’s cash reserves at the end of FY 2003. These unabsorbed resources are available for immediate deployment for virtually any purpose. To control for organization size, we divided cash reserves by the organization’s total expenses in FY 2003. *Customer relational slack* was the level of subscription revenue for FY 2003 divided by the organization’s total expenses in that year. Subscription revenues flowing from rare, relational customers are fungible and unabsorbed, and they represent excess resources in the same manner as waiting lists or oversubscriptions for capacity-limited organizations. We measured *operational slack* as unutilized seating capacity—that is, the total number of empty seats divided by total seating capacity at all performances during FY 2003. This measure is closely aligned with conceptual and operational examples of generic, absorbed slack in the literature (Bourgeois, 1981; Mishina et al., 2004). We measured *human resource slack* by dividing the number of full-time directors, designers, and actors on a theater’s staff by the total number of directors,

TABLE 1  
Descriptive Statistics and Correlation Matrix<sup>a</sup>

Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9	10
1. Product exploration	3.42	1.41										
2. Product exploitation	4.95	1.18	-.41									
3. Environmental threat	3.71	1.14	-.03	.05								
4. Financial slack <sup>b</sup>	17.84	42.21	.02	-.06	.00							
5. Customer relational slack <sup>b</sup>	14.51	11.62	-.32	-.02	-.17	.07						
6. Operational slack <sup>b</sup>	32.71	19.83	-.01	.13	.11	-.13	-.35					
7. Human resource slack <sup>b</sup>	14.21	21.96	.00	.11	.05	-.04	-.06	.01				
8. Total revenue in FY 2003 <sup>c</sup>	4.16	7.09	-.15	.02	.08	.06	.33	-.25	.01			
9. Net income in FY 2003	69,233	1.44	.03	.03	-.03	-.05	.09	-.15	-.01	.56		
10. Number of world premieres in FY 2003	2.63	4.35	.08	.07	.12	-.01	-.05	.10	-.14	-.02	-.04	
11. Number of theaters	256.36	385.93	.23	-.21	.09	.01	-.11	-.02	.01	.14	.07	-.02

<sup>a</sup> Correlations greater than |.15| are significant at  $p < .05$ ; correlations greater than |.20| are significant at  $p < .01$  (two-tailed  $t$ -tests).

<sup>b</sup> The mean values for these constructs can be interpreted as percentages.

<sup>c</sup> In millions of dollars.



designers, and actors it had employed during the year. Most theaters have one full-time artist on staff (i.e., the artistic director) and then hire additional artists, including directors, designers, and actors, as needed for each show. Some theaters, however, choose to internalize artistic resources in the form of full-time associate directors, designers, and actors, who are typically referred to collectively as a resident company. Having these resources on staff full-time rather than hiring each resource specifically for a single show represents slack.

### Self-Reported Measures of Environmental Threat and Product Exploration and Exploitation

To develop scales for the latent constructs, we conducted two rounds of qualitative research with industry experts. The first round involved audio-taped focus group discussions in four cities with 24 arts leaders from theater, opera, and dance. Guided by the concepts of exploration and exploitation in the literature, one of the coauthors led open discussions focused on innovativeness, exploration, and risk taking in an artistic context. One insight that emerged from the focus groups was that product exploration in this industry involves the creation of new-to-the-world plays and the injection of creative new forms of artistic expression into the play development process. These two forms of exploration are analogous to the development of radical new products and the incorporation of radical new design elements into existing products. Other insights clarified the role of product exploitation in this industry. Whereas most businesses implement product exploitation by continuing to market products that were developed in years past, nonprofit professional theaters create all-new product portfolios each year. Thus, exploitation in this industry focuses on incrementally modified productions from the existing canon of plays, where the key focus is on refining the conceptualization, interpretation, or production of the story. In the paragraphs below, we offer selected quotes from these sessions to illustrate these insights.

**Product exploration.** Several focus group participants equated exploration with developing new works, but others emphasized the importance of innovative conceptual approaches to older material. One managing director captured this perspective thus: "I just don't buy it! That [product exploration] is exclusively related to new plays. In a given year, the most innovative production might be a production of a Shakespeare, and in another year it might be a production of *Oedipus*. And in another year, it might be a new play." A managing director of a ballet company asked, "Is a new prod-

uct just another piece of work or a *different* kind of work? That's where you get innovative!" A general manager commented that exploration reflects "a desire to produce more [plays] that are going to be esoteric. It has to do with the kind of work you're willing to take on." Another managing director addressed the complexity of exploration: "In terms of programming and taking risks, it's originality, exploration, and importance of a new idea. Imagination. Some new ideas are more important than others. There's new work, then there's *new* work."

**Product exploitation.** An artistic director captured the spirit of exploitation in this description: "The structure of a rehearsal period, the structure of a season, the structure of a fundraising campaign. The challenge each year is how to make the wheel slightly rounder." A managing director offered, "I think we all have ended up having a very commercial, exploitation orientation because we have to fill the houses and not many theaters can fill the house with subscribers any longer based on an edgy, different kind of programming." A ballet company general director observed, "I think it's that all of us have such tremendous artistic assets that are not always accessible within the organization. How do you make liquid that asset in order to come up with some revenue? And that's not necessarily a brand new product, it's taking whatever artistic skills and assets already exist."

On the basis of these insights and guided by the literature, we developed a preliminary set of items. We then provided a one-page description of the constructs of interest (i.e., exploration, exploitation, and environmental threat) to four managing directors at theaters with budgets ranging between \$3 million and \$10 million. We asked them to reflect on the meaning of these constructs in the context of their strategies and ongoing decisions. We then asked them to review a preliminary draft of the survey instrument and solicited feedback on the clarity, validity, and completeness of the survey items.

We incorporated this feedback into the final wording of the items, which appear in the Appendix. The three product exploration items examine the extent to which theaters' artistic decisions in a current season emphasize innovation, variation, risk taking, experimentation, and discovery. The three product exploitation items examine the extent to which theaters' artistic decisions in the current season emphasize refinement, production, selection, and implementation. The three environmental threat items focus on the presence (or lack) of opportunities, economic promise, and hostility in the theaters' environment. We examined the reliability and consistency of the scales

using exploratory factor analysis and alpha coefficients. The three items for each construct loaded together on single factor, and none of the cross-loadings exceeded .40. The scales exhibited acceptable reliability, with the average alpha equal to .74, although the reliability of the environmental threat scale (.66) was slightly below recommended levels. We averaged the responses for the three scale items to create construct scores.

## RESULTS

### Hypothesis Tests

We tested the hypotheses by estimating separate ordinary least squares regression models for product exploration and exploitation. Tables 2 and 3 provide the results of these analyses. To minimize collinearity, we mean-centered the independent variables before creating the interaction terms. None of the variance inflation factors exceeded a value of 2, suggesting that collinearity was not a problem. We present results for seven models to facilitate assessment of the relative explanatory value of each set of variables. Model 1 shows that the control variables explain a significant portion of the variance in product exploration (11%,  $p < .01$ ) and a marginally significant portion of the variance in product exploitation (5%,  $p < .10$ ). Model 2 shows that direct effects for environmental threat and the four forms of slack explain a significant portion of the variance in product exploration (8%,  $p > .05$ ) and a nonsignificant portion of the

variance in product exploitation (4%,  $p > .10$ ). Collectively, the four hypothesized interaction effects explain a marginally significant portion of the variance in product exploration and product exploitation (5%,  $p < .10$ ). The hypothesized direct and interaction effects explain 12 percent of the variance in product exploration and 9 percent of the variance in product exploitation.

The results for the control variables are logical. Theaters with greater total revenue engaged in less product exploration, as is consistent with the idea that increasing organizational size leads to structural and cognitive inertia (Audia & Greve, 2006). Theaters with greater net income engaged in more product exploration, consistent with the idea that past success encourages exploration. The number of world premieres in FY 2003 was positively associated with product exploration, consistent with the idea that organizations maintain a relatively stable orientation toward exploration. None of these control variables were significant in the exploitation models (Table 3). Supporting complexity theory (e.g., McKelvey, 1999), higher (lower) levels of product exploration (exploitation) emerged in markets with larger numbers of theaters. We now examine the individual hypothesis tests using the model 7 results.

There is no support for Hypothesis 1a, which predicts a positive association between financial slack and product exploration, or Hypothesis 1b, which predicts a negative association between financial slack and product exploitation. In keeping

TABLE 2  
Results of Regression Analysis for Product Exploration<sup>a</sup>

Independent Variables	Hypothesis	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Total revenue in FY 2003		-.28**	-.18*	-.17*	-.22*	-.19*	-.18*	-.20*
Net income in FY 2003		.17*	.13 <sup>†</sup>	.13 <sup>†</sup>	.16*	.13 <sup>†</sup>	.13 <sup>†</sup>	.15*
Number of world premieres in FY 2003		.08	.09	.10 <sup>†</sup>	.14*	.12 <sup>†</sup>	.10 <sup>†</sup>	.14*
Number of theaters		.26**	.22**	.22**	.23**	.22**	.22**	.23**
Environmental threat			-.08	-.09	-.07	-.07	-.08	-.08
Financial slack	1a		.04	.04	.06	.04	.05	.06
Customer relational slack	2a		-.31**	-.30**	-.27**	-.29**	-.31**	-.27**
Operational slack	3a		-.14*	-.14*	-.17*	-.16*	-.14*	-.16*
Human resource slack	4a		.01	.02	-.00	.01	-.00	.01
Financial slack × environmental threat	5a			.14*				.13*
Customer relational slack × environmental threat	6a				.17*			.18*
Operational slack × environmental threat	7a					-.07		.04
Human resource slack × environmental threat	8a						.04	.04
$R^2$		.11**	.19**	.21**	.22**	.19**	.19**	.23**
$\Delta R^2$			.08*	.02 <sup>†</sup>	.03*	.00	.00	.04 <sup>†</sup>

<sup>a</sup> The changes in  $R^2$  for models 3 through 7 are in comparison to the value for  $R^2$  in model 2. Standardized coefficients are reported; significance levels are based on one-tailed  $t$ -tests or  $F$ -tests.

<sup>†</sup>  $p < .10$

\*  $p < .05$

\*\*  $p < .01$

**TABLE 3**  
**Results of Regression Analysis for Product Exploitation**

Independent Variables	Hypothesis	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Total revenue in FY 2003		.03	.06	.05	.11	.09	.06	.10
Net income in FY 2003		.03	.03	.03	-.01	.02	.03	-.00
Number of world premieres in FY 2003		.07	.07	.05	.02	.03	.07	.01
Number of theaters		-.22**	-.23**	-.23**	-.24**	-.24**	-.23**	-.24**
Environmental threat			.04	.05	.02	.03	.04	.04
Financial slack	1b		-.04	-.05	-.06	-.05	-.04	-.06
Customer relational slack	2b		-.00	-.02	-.05	-.03	-.00	-.06
Operational slack	3b		.13 <sup>†</sup>	.13 <sup>†</sup>	.16*	.16*	.13 <sup>†</sup>	.16*
Human resource slack	4b		.11 <sup>†</sup>	.09	.12 <sup>†</sup>	.11 <sup>†</sup>	.11 <sup>†</sup>	.10 <sup>†</sup>
Financial slack × environmental threat	5b			-.17*				-.15*
Customer relational slack × environmental threat	6b				-.20**			-.17*
Operational slack × environmental threat	7b					.13 <sup>†</sup>		.02
Human resource slack × environmental threat	8b						.00	.01
$R^2$		.05 <sup>†</sup>	.09	.11*	.12*	.10 <sup>†</sup>	.09	.14*
$\Delta R^2$			.04	.02*	.03*	.01	.00	.05 <sup>†</sup>

<sup>a</sup> The changes in  $R^2$  for models 3 through 7 are in comparison to the value for  $R^2$  in model 2. Standardized coefficients are reported; significance levels based on one-tailed  $t$ -tests or  $F$ -tests.

<sup>†</sup>  $p < .10$

\*  $p < .05$

\*\*  $p < .01$

with Hypothesis 2a, which predicts a negative association between customer relational slack and product exploration, customer relational slack has a negative main effect ( $\beta = -.27$ ,  $p < .01$ ) on product exploration. There is no support for Hypothesis 2b, which predicts a positive association between customer relational slack and product exploitation, because the coefficient for customer relational slack is nonsignificant in the analysis with product exploitation as the dependent variable. Hypothesis 3a predicts a negative association between operational slack and product exploration, and Hypothesis 3b, a positive association between operational slack and product exploitation. Both hypotheses are supported. Operational slack exerts a negative ( $\beta = -.16$ ,  $p < .05$ ) effect on product exploration and a positive ( $\beta = .16$ ,  $p < .05$ ) effect on product exploitation. Hypothesis 4a, which predicts a negative association between human resource slack and product exploration, was not supported; the coefficient is nonsignificant. Hypothesis 4b, predicting a positive association between human resource slack and product exploitation, receives weak support: the coefficient for human resource slack is positive and marginally significant ( $\beta = .10$ ,  $p < .10$ ) in the analysis with product exploitation as the dependent variable.

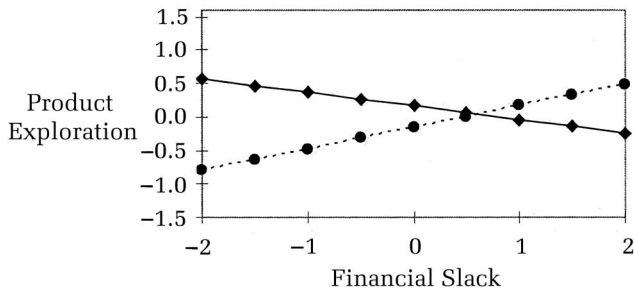
Hypothesis 5a predicts that the association between financial slack and product exploration will become more positive as the environment of an organization is perceived as more threatening, and Hypothesis 5b predicts that the association be-

tween financial slack and product exploitation will become more negative as the environment is perceived as more threatening. We find support for both hypotheses; the financial slack by environmental threat interaction is positive ( $\beta = .13$ ,  $p < .05$ ) in the product exploration model and negative ( $\beta = -.15$ ,  $p < .05$ ) in the product exploitation model. To better understand the interaction effects, we plotted the relationship between financial slack and product exploration and exploitation at low and high levels of environmental threat (i.e., two standard deviations below and above the mean) and calculated simple slope coefficients (Aiken & West, 1991). Supporting Hypothesis 5a, Figure 2a shows that the relationship between financial slack and product exploration is strongly positive ( $\beta = .59$ ,  $t = 1.87$ ) when environmental threat is high and marginally negative ( $\beta = -.47$ ,  $t = -1.50$ ) when environmental threat is low. Figure 2b shows that the relationship between financial slack and product exploitation is negative ( $\beta = -.67$ ,  $t = -1.99$ ) when environmental threat is high and marginally positive ( $\beta = .55$ ,  $t = 1.64$ ) when environmental threat is low. These results, which are consistent with prospect theory, suggest that product exploration and exploitation involved near-term trade-offs for the organizations in our study, contingent on the level of financial slack and environmental threat.

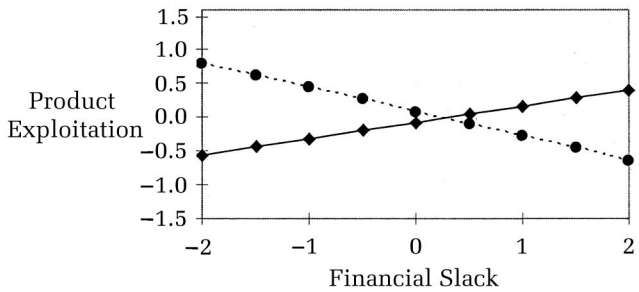
Hypotheses 6a and 6b are both supported. Hypothesis 6a predicts that the association between customer relational slack and product exploration

**FIGURE 2**  
Plotting Significant Interaction Effects

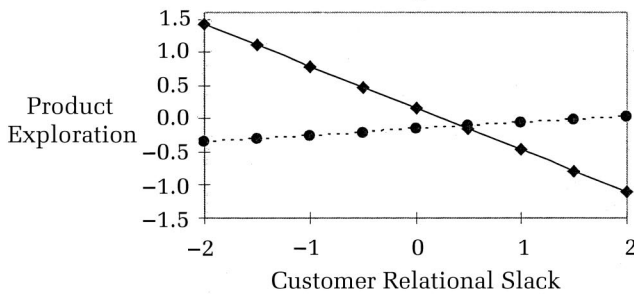
**(2a) Effect of Financial Slack and Environmental Threat on Product Exploration**



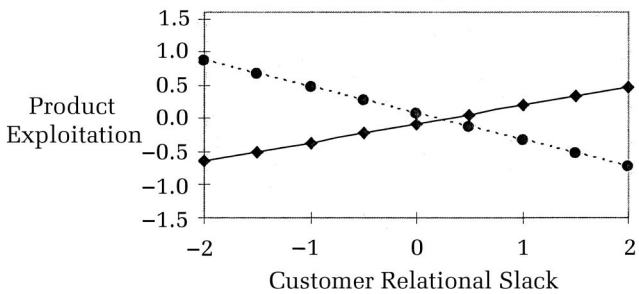
**(2b) Effect of Financial Slack and Environmental Threat on Product Exploitation**



**(2c) Effect of Customer Relational Slack and Environmental Threat on Product Exploration**



**(2d) Effect of Customer Relational Slack and Environmental Threat on Product Exploitation**



—◆— Low threat    - - -●- - - High threat

will become less negative as an environment is perceived as more threatening. Supporting this prediction, the customer relational slack by environmental threat interaction in the product exploration model is positive ( $\beta = .18, p < .05$ ). Figure 2c indicates that the relationship between customer relational slack and product exploration is negative ( $\beta = -.55, t = -3.52$ ) when environmental threat is low and becomes nonsignificant ( $\beta = .01, t = 0.06$ ) when environmental threat is high. Hypothesis 6b predicts that the relationship between customer relational slack and product exploitation will become less positive as the environment is perceived as more threatening. The customer relational slack by environmental threat interaction in the product exploitation model is negative ( $\beta = -.17, p < .05$ ). Figure 2d indicates that the relationship between customer relational slack and product exploitation is marginally positive ( $\beta = .22, t = 1.33$ ) when environmental threat is low and becomes negative ( $\beta = -.34, t = -1.79$ ) when environmental threat is high. This result suggests opposing effects of customer relational slack on product exploitation under higher versus lower environmental threat.

There is no support for Hypothesis 7a, which predicts that the association between operational slack and product exploration would become more

negative or Hypothesis 7b, stating that the association between operational slack and product exploitation will become more positive as the environment of an organization is perceived as more threatening. The operational slack by environmental threat interaction term is nonsignificant in both models. There also is no support for Hypotheses 8a or 8b, which predict that the association between human resource slack and product exploration (exploitation) will become more negative (positive). The human resource slack–environmental threat interaction term is nonsignificant in both models. Though inconsistent with our predictions, these results make intuitive sense, in that the effects of both forms of absorbed slack, over which managerial control is limited, are unaffected by the environment.

**Post Hoc Analyses**

Following reviewers' suggestions, we conducted further analyses to assess the robustness of our results. First, we replicated the analyses using objective measures of exploration and exploitation in place of the survey-based measures. We operationalized product exploration as the number of readings and workshops (representing novel concepts)



conducted in the current season and product exploitation as the number of classics (such as Shakespeare and Molière) produced in the current season. This analysis was problematic given some coarseness in the measures and some missing observations owing to collection of the objective data nine months after the survey. The reduction in sample size generated concerns about selection bias and power to detect significant effects. Nevertheless, the supplemental analysis replicated seven of the eight interaction term results and produced an overall pattern of results that was largely consistent with the initial results.

We also replicated the analysis using subscales of the environmental threat measure, to explore the robustness of our results given potential concerns stemming from the low reliability of the environmental threat scale. One analysis used the two positively valenced scale items measuring environmental opportunity and promise, and the other used the negatively valenced hostility item (see the Appendix). Both analyses replicated seven of the eight interaction results and produced an overall pattern of results that was largely consistent with the earlier pattern.<sup>2</sup>

## DISCUSSION

The results of this study provide a complex picture of the effects of organizational slack on exploration and exploitation. Our conceptual and empirical focus on distinct forms of slack and their interactions with environmental threat appraisal yields several insights that would otherwise be difficult to explicate. The results are also consistent with a contingent view of organizational risk taking in which risk seeking and risk aversion are both viable alternatives. We explore these insights and their implications.

### Characteristics of Slack Resources

We proposed that the rarity and absorption of a slack resource determine its interpretation and subsequent influence on organizational actions because organizations face cognitive and structural constraints in deploying rare and absorbed resources, respectively. We examined the effects of financial slack (generic and unabsorbed), customer relational slack (rare and unabsorbed), operational slack (generic and absorbed), and human resource slack (rare and absorbed). Although the main ef-

fects of financial slack were not significant, relational and operational slack inhibited product exploration, a finding that is consistent with our predictions. Increasing levels of operational and human resource slack also had positive effects on product exploitation. These results are consistent with other findings (Kraatz & Zajac, 2001; Mishina et al., 2004) and suggest that structural constraints accompanying absorbed slack inhibit implementation of expansive, innovative strategies and impose pressures to extract short-term gains through exploitation. Though it is prudent for organizations to hold a modicum of slack operating resources for coping with unexpected demand, our findings suggest that too much operating slack may exert a negative influence on exploration.

Although recent research has examined the effects of relational resources on exploration-related activities (Audia & Greve, 2006; Kraatz & Zajac, 2001), this is the first study to examine the effects of customer relational slack. Our results showing different effects on product exploration and exploitation suggest that slack accruing from relational customers should be considered as distinct from more generic financial slack. Customer relational slack exerted the strongest direct negative effect on product exploration, supporting our argument that cognitive constraints accompanying rare resources inhibit the willingness to place them at risk under normal circumstances. Our results also point to a challenge for organizations in that although customer relational capital is a valuable resource (Adler & Kwon, 2002; Dierickx & Cool, 1989), close relationships with customers may lead to risk aversion, detracting from an organization's exploration and innovation capabilities (e.g., Christensen & Bower, 1996).

Our conceptual approach and findings closely parallel those of another study. In Kraatz and Zajac's (2001) research examining curricular decisions of private universities, donor relationships were (1) conceptualized as a source of social capital, (2) operationalized as annual philanthropic financial support (total giving over total revenue), and (3) found to exert a negative influence on motivation to change university curricula. By comparison, in our study customer relational slack is (1) conceptualized as support from theaters' relational customers, (2) operationalized as subscription revenue over total expenses, and (3) found to exert a negative main effect on product exploration. The congruent results from studies employing different forms of relational capital in varying contexts provide further confidence in the generalizability of our findings. Future research should consider the effects of relational slack resulting from other or-

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<sup>2</sup> Results of the post hoc analyses can be obtained from the first author.

ganizational stakeholders including social capital among work groups and network capital with key suppliers (Dyer & Chu, 2003; Dyer & Singh, 1998).

### Slack and Environmental Threat

The second contribution emerges from the pattern of interaction effects (see Figure 2), which suggest that organizational responses to environmental threat are not uniform. Rather, these effects depict a pragmatic picture of organizational decision making, contingent on the level of financial and customer relational slack available (Steensma & Corley, 2001). We first discuss the effects on product exploration.

Without an imminent threat, organizations with increasing levels of financial and customer relational slack reduce their levels of exploration. We expected this effect in the case of relational slack, given its rarity, yet the negative influence of financial slack was unexpected. It suggests that even generic resources are conserved rather than placed at risk when the potential benefits of risk taking are less salient, as is the case in an opportunity-laden environment. Increasing slack, in these cases, appears to foster complacency and dampen exploration. But in an environment that threatens current and long-term performance, increasing levels of financial slack lead to increased emphasis on product exploration that could deplete resources but could also lead to high payoffs. Similarly, the relationship between customer relational slack and product exploration becomes less negative under threatening conditions, but it does not become positive. Although this result supports our expectation that organizations will be less protective of their rare slack resources in the face of high threat, it appears that managers are reluctant to risk rare customer relational slack on product exploration, even in the face of extreme environmental exigencies.

The results for product exploitation are generally opposite to the product exploration results, and they are similar for customer relational and financial slack. We expected less exploitation under low threat in the case of financial slack, but the unexpected positive effect again suggests a pragmatic approach. Absent an imminent threat, organizations revert increasingly to known and tried approaches as financial slack or customer relational slack increases. However, under high threat, increasing levels of both forms of slack lead to lower levels of exploitation, suggesting that organizations with sufficient resources are less likely to maintain incumbent approaches. These directionally opposite effects of unabsorbed slack on product exploi-

tation, contingent on environmental context, are consistent with a complex, pragmatic view of organizational actions (March & Shapira, 1992; Shapira, 1995; Steensma & Corley, 2001).

The significant interaction effects for unabsorbed forms of slack are consistent with prospect theory's predictions. When facing a threatening environment, organizations with higher levels of unabsorbed slack, both generic and rare, invest in higher levels of exploration and lower levels of exploitation, both offensive strategies intended to protect their long-term strategic positions. Thus, unabsorbed slack resources foster the ability to counter, rather than retreat from, threatening environments. The nonsignificant interaction effects for absorbed forms of slack fail to support our predictions based on the threat-rigidity hypothesis. The environment has no effect on the relationships between absorbed slack, both generic and rare, and product exploration and exploitation. We interpret this result to indicate that structurally constrained resources offer little flexibility for responding to environmental exigencies.

Our findings are consistent with Audia and Greve's (2006) research demonstrating that resource endowments determine when organizational reactions conform to prospect theory's predictions. More generally, they echo Shapira's (1995) contention that managers make judicious decisions when considering the benefits of attaining superior strategic positions versus the risks of jeopardizing ongoing viability. Depending on the environment and the nature and levels of slack, organizations may adapt their "mental models" and shift from pursuing long-term aspirations to ensuring near-term survival (Steensma & Corley, 2001).

### Product Exploration and Exploitation

Our third contribution stems from insights regarding product exploration and exploitation. In this research, product exploitation appears to be the antithesis of product exploration. Not only are the two constructs negatively correlated ( $r = -.41$ ), but also, none of the proposed antecedents has a directionally similar effect on the two constructs. These results suggest that internal and external factors force trade-offs between a strategic emphasis on product exploration and a strategic emphasis on exploitation (Smith & Tushman, 2005).

We note that this result may be due to the smaller size of the organizations in our study. Larger organizations with disaggregate decision-making units may balance dual emphases on exploration and exploitation more effectively (Benner & Tushman, 2003). For example, Gibson and Birkinshaw (2004)

reported a positive correlation ( $r = .49$ ) between alignment (exploitation) and adaptability (exploration), with most firms scoring relatively high on both. Moreover, we only examined exploration and exploitation as they pertain to the operational domain of product strategies. Trade-offs may be less evident in the case of exploration and exploitation across multiple domains of decision making in which routines and processes may be less intertwined (Lavie & Rosenkopf, 2006). So although our results imply trade-offs between strategic emphases, the findings generalize most readily to comparable organizational and operational contexts.

### Managing Conflicting Influences of Slack and Environmental Threat

A summary implication of our research is that different forms of slack resources exert different and sometimes conflicting influences on product exploration and exploitation. These effects are evident through main effects and interactions with environmental threat perceptions. In the face of these effects, we speculate on organizational arrangements that can help overcome and align product exploration and exploitation with intended strategy. The prevailing view (e.g., March 1991, 2006) is that organizations need to achieve some balance of exploration and exploitation, either concurrently or over multiple planning periods. In the case of product strategy, long-term success requires the ability to increase or decrease product exploration and exploitation as required by competitive and strategic pressures. Our research sheds light on how organizations can amplify or dampen naturally occurring influences in order to achieve desired levels of exploration and exploitation. We build on structural and cognitive approaches for managing conflicting effects of exploration and exploitation (Benner & Tushman, 2003) and environmental threat (Gilbert, 2005) to suggest how this might be achieved.

Structural arrangements include decoupling organizational units (Benner & Tushman, 2003) and creating substructures within a single unit (Siggelkow & Levinthal, 2003) to produce desired effects on organizational strategy. Such arrangements can isolate conflicting processes such as product exploration and exploitation, so that an organization can enhance the extent of one emphasis without disturbing others. For example, our results suggest that protecting artistic leaders in an organization from marketing concerns might reduce focus on product exploitation and shift attention to artistic exploration. Marketing managers can absorb concerns about sales levels (e.g., low occu-

pancy), allowing artistic talent to focus on innovation and creativity. Another example is our finding that organizations holding financial and customer relational slack are more likely to conserve slack under low threat and increase exploration under high threat. This observation suggests that organizations with large endowments of unabsorbed resources seeking to increase their exploration should more strongly integrate business and artistic units so that market pressures create urgency in artistic endeavors. Making external threats more salient appears to shift organizations to higher (lower) levels of exploration (exploitation).

Smaller organizations may lack sufficient resources to support multiple, loosely coupled subunits. Moreover, in dynamic markets that require rapid and frequent adaptation of strategic emphasis, rigid structural arrangements may not be efficient. In such cases, adopting organizational cultures and processes capable of supporting simultaneous, conflicting emphases may be a more feasible alternative (Smith & Tushman, 2005). Gibson and Birkinshaw demonstrated that organizations possessing contextual ambidexterity, defined as “the behavioral capacity to simultaneously demonstrate alignment and adaptability across an entire business unit” (2004: 209) realize higher levels of performance than less adaptive organizations. However, Voss, Cable, and Voss (2006) demonstrated that performance suffers if contextual ambidexterity leads to internal disagreement over fundamental organizational values. Additional research is needed to identify how and when organizations can effectively manage the conflicting demands of exploration and exploitation.

### Limitations and Directions for Future Research

The implications of this research are subject to several limitations. One potential limitation is that we employed a relatively coarse measure of slack that assesses the level of a given resource but does not directly assess whether the resource is “excess.” Thus, we could not ascertain whether an incremental resource fell within some planned level that a theater sought to have on hand or was true excess, a supply over and above planned levels (see Nohria & Gulati, 1996). Although the results bear out our logic *ex post*, not knowing exactly how excess resources are interpreted *ex ante* is problematic. A related concern is our focusing on levels of slack without considering an organization’s current level of perceived performance relative to its target level of performance (Audia & Greve, 2006; Greve, 2003). Since we lacked measures of performance relative to survival and aspirational targets, we

were unable to specifically account for the effects of deviations from these targets that may influence strategic emphases (March & Shapira, 1992).

Our research did not examine the effects of organizational strategic orientations, which can affect ongoing product emphases. In Miles and Snow's (1978) typology of strategic orientations, "prospectors" are more likely to explore, "defenders" are more likely to exploit, and "analyzers" are more likely to combine the two extreme strategies (Shortell & Zajac, 1990). Although we included a measure to control for strategic orientation (the number of world premieres during the past year), future research should directly examine the influence of an organization's orientation on relationships among slack, environment, exploration, and exploitation.

Finally, we focused on organizational and resource antecedents of product exploration and exploitation without examining subsequent consequences. As a result, although our research contributes to a better understanding of the influences of resources and environmental contexts on organizational exploration and exploitation, we are unable to offer normative insight on the benefits of an exploration or exploitation emphasis, or the performance implications of observed organizational actions in response to slack and environmental conditions (Kraatz & Zajac, 2001).

In conclusion, this study contributes to understanding the complex links between organizational slack, environmental context, and product exploration and exploitation. Our findings point to the importance of considering both the rarity and absorption of a resource in determining the relationship between organizational slack and product exploration and exploitation. Absorbed and generic slack resources lead to increased exploitation and decreased exploration. Unabsorbed resources, both generic and rare, resulted in higher levels of product exploration and lower levels of product exploitation in our study, but only when environmental threats are perceived. The overall pattern of results suggests pragmatic decision making that balances the benefits of attaining superior strategic positions with the risks of jeopardizing ongoing viability.

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## APPENDIX

### Item Descriptions and Factor Analysis Results<sup>a</sup>

Stems and Items	Factor Loadings		
This season's artistic decisions emphasize . . . (“weak emphasis,” 1 to “strong emphasis,” 7)			
<i>Product exploration</i> ( $\alpha = .83$ )			
Creating revolutionary new conceptual approaches.	<b>.86</b>	.01	.00
Experimenting with radical new works.	<b>.86</b>	.01	-.12
Challenging traditional artistic boundaries.	<b>.80</b>	-.12	.11
<i>Product exploitation</i> ( $\alpha = .72$ )			
Maximizing the contribution of our in-house artistic/production skills.	.16	<b>.78</b>	.00
Offering shows that stay close to our known strengths.	-.18	<b>.78</b>	.12
Producing shows similar to those that have done well for us in the past.	-.28	<b>.69</b>	-.11
Given current economic conditions and the reality of difficult trade-offs, indicate your agreement or disagreement with each of the following statements . . . (“strongly disagree,” 1, to “strongly agree,” 7)			
<i>Environmental threat</i> ( $\alpha = .66$ )			
Our theater's economic future is promising. (reverse-coded)	.19	.22	<b>.83</b>
We perceive the current overall situation as an opportunity. (reverse-coded)	-.03	.03	<b>.80</b>
We feel that the current operating environment is particularly hostile.	-.21	-.36	<b>.64</b>

<sup>a</sup> Loadings greater than |.40| are bolded for visual clarity.



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