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To survive and prosper in today's highly competitive environment, firms are increasingly engaging in cooperative alliances with their rivals. However, the impact of these competitor alliances on financial performance is largely unknown. This research examines this issue. Using both survey and archival data, the authors conduct two studies that reveal that the intensity of a firm's alliances with its competitors has a curvilinear (inverted U-shaped) influence on return on equity. In addition, the authors find that a firm's competitor orientation, as embodied in its strategies and objectives, can strengthen or weaken this curvilinear effect. Overall, these findings indicate that both competition and cooperation have dark sides that a firm must carefully manage when working with rivals.

Working with Rivals: The Impact of Competitor Alliances on Financial Performance

A considerable body of marketing thought suggests that a competitor orientation should improve a firm's financial performance by enabling the firm to position its strengths against rivals' weaknesses (e.g., Day and Nedungadi 1994; Slater and Narver 1995). This rivalry view is also shared by prominent theorists in management and economics, who argue that a firm's profitability largely depends on its ability to "beat the competition" either by manipulating an industry's structural parameters, as in competitive forces theory (Porter 1980), or by developing difficult-to-imitate competencies, as in the resource-based perspective (Barney 1991; Conner 1991; Penrose 1959). Thus, the rivalry notion that competing firms are enemies that must be defeated is a deeply ingrained belief (e.g., Kotler and Singh 1981).

However, this rivalry view is at odds with current industry practice, which reveals that alliances with rival firms are rather commonplace. For example, Sony, IBM, and Toshiba are codeveloping the Cell chip to serve as the brains of the PlayStation 3 console (*BusinessWeek* 2005). The semiconductor sector has been increasingly transformed from confrontation to cooperation, as evidenced by several alliances

among leading companies (e.g., Hitachi, Mitsubishi, Motorola, NEC) with cooperative research and development (R&D), production, and distribution (Roberts 2004). Similar alliances are taking place across a wide variety of industries (Hagedoorn, Link, and Vontoras 2000). Indeed, firms can financially benefit from engaging in cooperative alliances with competitors to develop new products or market existing ones (e.g., Bucklin and Sengupta 1993; Rindfleisch and Moorman 2001). Thus, it appears that the traditional rivalry view is incomplete and not well suited toward understanding the complexity of engaging in alliance activities with competitors. As a result, managers are left with little guidance on whether firms can improve performance by forming such alliances.

Our research addresses this gap. In contrast to the rivalry view of competition as a "win-lose" game, we suggest that firms can form alliances with rivals (which we call "competitor alliances," or CA for short) to accomplish both competitive and cooperative goals and boost profits in a "win-win" manner (Lado, Boyd, and Hanlon 1997). We identify several benefits (e.g., enhanced learning, saved costs, shared resources) from engaging in CA activities. However, because cooperation with competitors may also leave a firm vulnerable to opportunistic exploitation (Rindfleisch and Moorman 2003; Williamson 1985), we argue that firms need to be cautious about these alliances. Indeed, unconstrained cooperation with competitors may train more capable rivals and lead to careless transfer of a firm's market expertise (Das, Sen, and Sengupta 1998; Grayson and Ambler 1999). Thus, we suggest that CA activity that is

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either too low or too high can harm a firm's financial performance and that the impact of CA on performance varies across different types of competitor-oriented mind-sets.

Specifically, in this research, we develop a conceptual framework that details (1) the curvilinear influence of CA intensity on firm profitability and (2) the role of competitor orientation (strategies and objectives) in facilitating or hindering this influence. We then test this framework by using a combination of both survey and archival data across two studies. The results provide considerable support for our conceptualization and suggest that managers need to balance both competition and cooperation simultaneously to optimize financial returns because both appear to have a "dark side."

CONCEPTUAL FRAMEWORK

CA and Firm Profitability

Recently, several scholars have suggested that firms can maximize their financial performance by blending competition with cooperation (e.g., Amaldoss et al. 2000; Brandenberger and Nalebuff 1996; Luo, Slotegraaf, and Pan 2006; Sheth and Sisodia 1999). This view is formalized in Lado, Boyd, and Hanlon's (1997) "syncretic model" of superior profits, which suggests that CA can facilitate resource sharing, direct conflict in a functional manner, and promote mutual learning. Thus, these alliances should enhance profitability by mixing the benefits of both competition (e.g., efficient resource allocation) and cooperation (e.g., enhanced information flow). We suggest that CA formation can generate both competitive and cooperative advantages.¹

Although the direct impact of CA on firm profitability has received little investigation, there is a substantial amount of indirect evidence that suggests that this impact should (at least in part) be positive. In general, CA entail a pooling of partners' resources and capabilities (Bucklin and Sengupta 1993), promotes higher levels of both tacit and explicit knowledge acquisition (Calabrese and Baum 2000; Tsai 2001), and enhances a firm's new product development efforts (Rindfleisch and Moorman 2001).² According to resource capability theory (e.g., Barney 1991; Day 1994), these outcomes should enhance financial returns. More broadly, the intimate contact afforded by CA activity should foster a firm's basic ability (i.e., learning capacity) to diagnose and monitor its progress against rivals continuously, thus enhancing its market performance (Hamel, Doz, and Prahalad 1989).

Thus far, we have suggested that CA should positively influence firm profitability. However, we expect that this

positive influence may decline if CA become too intensive (i.e., when a firm engages in unbridled CA activities). Unbounded interorganizational cooperation and trust (especially with a firm's competitors) may leave a firm open to the risks of opportunistic exploitation by alliance partners (Selnes and Sallis 2003; Williamson 1985). As Zeng and Chen (2003, p. 588) warn, "an over-trusting [competitor alliance] partner can become an easy target for exploitation by its greedy partners." The high intensity of CA may also inhibit firm performance by enhancing a rival's ability to copy a firm's technological competence and marketing tactics (Wu, Balasubramanian, and Mahajan 2004). Firms that are overly engaged in CA activities may need to dedicate substantial resources to safeguard their investments from opportunistic alliance partners. Moreover, Rindfleisch and Moorman (2003) find that the efforts that CA members devote to monitoring their partners hamper their ability to maintain a strong customer focus. In summary, this discussion suggests that whereas underutilization (i.e., low intensity) of CA can inhibit performance because of the lost potential benefits of working with rivals, overutilization (i.e., high intensity) of CA can be harmful because of the dark side of opportunistic exploitation. Therefore, a moderate intensity of CA activities appears to be optimal. Thus, we predict the following:

H₁: CA intensity has an inverted U-shaped relationship to firm profitability.

The Moderating Effects of Competitor Orientation

Prior research has found that organizational factors influence the effects of CA (Bucklin and Sengupta 1993; Rindfleisch and Moorman 2001). For our research objective, we suggest that a firm's competitor orientation (Kohli and Jaworski 1990) is particularly relevant to the investigation of CA activities because competitor-oriented mind-sets (strategies and objectives) can affect the outcomes of engaging in CA (Armstrong and Collopy 1996; Day and Nedungadi 1994). This section of our conceptual framework specifies both the direct influence of competitor orientation and the interactive effects (both positive and negative) between competitor orientation and CA intensity on firm profitability.

Competitor orientation is a core element of the marketing concept, which suggests that to be successful, a firm must satisfy customers' needs and wants better than its competitors (e.g., Deshpandé, Farley, and Webster 1993). Market orientation scholars have strongly advocated the notion of competitor orientation (e.g., Kohli and Jaworski 1990; Narver and Slater 1990), but it is not limited to this literature. We argue that competitor orientation is a broad construct with two distinct facets: (1) strategies (Day 1994; Deshpandé, Farely, and Webster 1993; Kohli and Jaworski 1990) and (2) objectives (Armstrong and Collopy 1996; Teger 1980). Competitor alliance activity and competitor orientation represent related but distinct components of a firm's competitive interactions. Specifically, CA activity refers to the intensity of a firm's behavioral interactions with its competitors (Bucklin and Sengupta 1993; Das, Sen, and Sengupta 1998), whereas competitor orientation captures a firm's mental representation and beliefs about its rivals (Day and Nedungadi 1994). As we outline subsequently, we believe that the effects of these two facets of

¹As shown by the success of market-based economies, competition serves an essential role by motivating firms to engage in innovative activities (Hagel and Brown 2005; Schumpeter 1942) and by ensuring a more efficient allocation of scarce resources (Day 1994; McAfee and McMillan 1996). We assume that being competitor oriented does not exclude the possibility of forming alliances with competing firms. Prior research supports this assumption (e.g., Benson 1977; Sheth and Sisodia 1999). In addition, we are aware that competitor orientation could also directly influence the level of CA.

²For example, "When [Procter & Gamble] researchers came up with the technology for a better plastic wrap—a new category for the company—[Procter & Gamble] CEO Lafley decided that more profit lay in joining forces with rival Clorox. The results, Glad Press'n Seal, grabbed 20 percent of its market in a year and a half" (*Business 2.0* 2005, p. 48).

competitor orientation (strategies and objectives) are divergent in nature.

The facilitating role of competitor-oriented strategies. This facet of competitor orientation refers to the degree to which a firm emphasizes understanding and responding to the strengths and weaknesses of both current and potential competitors. Essentially, competitor-oriented strategies (COS) are a form of organizational sensemaking about appropriate strategic responses to competitor activities. These sensing and responding functions depend heavily on the acquisition and utilization of competitor intelligence (Jaworski and Kohli 1993). Competitor-oriented strategies can be traced back to early work in organizational strategy (e.g., strength, weakness, opportunity, and threat analysis in Porter 1980) and manifest in both market orientation (e.g., Narver and Slater 1990) and resource capability theory (e.g., Day 1994). Proponents suggest that COS enhance firm performance by helping firms (1) foster a competitive culture for developing distinctive competencies, (2) nullify competitor strengths and reduce their own weaknesses, and (3) improve the effectiveness and efficiencies of their marketing activities (e.g., Day and Nedungadi 1994; Gatignon and Xuereb 1997; Li and Calantone 1998). Therefore, we predict the following:

H₂: COS are positively related to firm profitability.

In addition to the direct, positive influence of COS on performance (i.e., due to access to information about alliance partners' technologies and new products, as well as their selling and branding expertise), we suggest that COS facilitate the effects of CA intensity on firm profitability. As organizational learning scholars (Moorman 1995; Sinkula 1994) note, although access to information about partners' selling and technological practices can be potentially promising, capitalizing on this promise is highly dependent on the manner in which a firm processes and uses this information. Because COS emphasize sensing, processing, and responding to competitive interactions (Kohli and Jaworski 1990), they should also help a firm realize the financial potential of its CA activity. Essentially, the coupling of CA with COS should generate beneficial synergistic returns (i.e., understanding and learning from rivals' marketing and technological expertise enable a firm to bolster strengths and eliminate weaknesses) and thus should strengthen the linkage between CA intensity and firm performance. Therefore, we posit the following:

H₃: COS strengthen the relationship between CA intensity and firm profitability, as H₁ predicts.

The hindering role of competitor-oriented objectives. This facet of competitor orientation refers to the degree to which the primary goal of an organization is to defeat competitors in the marketplace. This perspective has been most stridently advanced in the marketing warfare literature (e.g., Kotler and Singh 1981), which suggests that competing firms are analogous to opposing armies on a battlefield. Firms with strong competitor-oriented objectives (COO) view their industry as a zero-sum game in which their gains must come at the expenses of competitor losses, and such firms often adopt market share as their key performance metric. Although early research on the PIMS (profit impact of marketing strategy; e.g., Buzzell, Gale, and Sultan 1975) suggested that market share enhances profitability, later

studies raised questions about the generalizability of these results (e.g., Jacobsen and Aaker 1985). A growing body of research suggests that zero-sum goals are harmful to learning, shift priorities away from customer value creation, and fuel mutually harmful price wars (Campbell and Furrer 1995; Kohn 1986). Armstrong and Collopy (1996) provide convincing evidence that focusing on beating the competition has a negative influence on a firm's survivability and financial performance. Therefore, we predict the following:

H₄: COO are negatively related to firm profitability.

In addition to the direct, negative influence of COO on performance (i.e., due to the tendency to foster detrimental practices, such as price cutting, and to discourage beneficial practices, such as knowledge exploration), we suggest that COO also hamper the effects of CA activities on firm profitability. Because CA activity provides a firm with opportunities to learn about its competitors' current activities and future objectives (Lado, Boyd, and Hanlon 1997), when armed with this information, a zero-sum-oriented firm is better equipped to achieve its goals of eliminating rivals in mutually harmful competitive "deconstruction" (Jaworski, Kohli, and Sahay 2000). This orientation would hinder the beneficial outcomes of CA (i.e., mutual learning and pooling of resources). Likewise, gaining information about rivals' segmentation tactics and selling costs in CA activities may make a firm feel empowered to set off harsher price wars that may lead to diminished levels of profitability. Essentially, the coupling of CA with COO should lead to negative interactive effects (i.e., suspicion and mistrust in zero-sum competitive orientation breed mutually harmful practices) and thus may weaken the linkage between CA intensity and firm profitability. Therefore, we propose the following:

H₅: COO weaken the relationship between CA intensity and firm profitability, as H₁ predicts.

The next two sections report two field studies that test the hypotheses. The purpose of using a multistudy research design is to enhance the external validity and generalizability of our results.

STUDY 1

Sample and Data Collection

To reduce common method hazards and social desirability bias, we collected firm survey data to assess CA activities, dimensions of competitor orientation, and other firm characteristics and archival data to capture firm profitability (i.e., return on equity [ROE]) and background information (i.e., firm experience, assets, Standard Industrial Classification codes, and number of employees) from Standard & Poor's COMPUSTAT database. The use of two separate data sources is valuable because (1) single-informant self-reported data are often a source of common method bias and (2) perceptual firm performance (especially perceived performance relative to competitors') data could be prejudiced by the assessment of CA and competitor orientation measures in particular. The rest of this section describes the procedures we used in Study 1.

The sampling frame for this study was a commercial national mailing list that covered firms from diverse industries. The list contained the names of executives from 2000

different firms. Each executive was contacted and prequalified by telephone (Campbell 1955). To be included in our study, selected informants needed to be (1) knowledgeable about their firms' competitive activities and (2) personally involved in their firms' strategic decision making. As a result of these telephone contacts, 877 executives met the prescreening criteria and agreed initially to participate in this project.

Each qualified executive received a cover letter, a survey questionnaire, and a stamped reply envelope. The cover letter promised an executive summary of the research as an incentive for participation. After follow-up telephone calls and a second mailing, we received 251 responses (for a 29% response rate). Of these, 228 were usable after we eliminated responses because of inadequate levels of informant knowledge/involvement or severe missing data.

The responses represent a wide variety of industries, including both high-tech industries, such as electronics (25%) and pharmaceuticals (21%), and low-tech industries, such as machinery (12%), chemicals (9%), paper and forest (8%), apparel (6%), and rubber and plastic. The respondents included vice presidents of marketing or senior marketing managers (71%), chief executive officers (CEOs) (16%), and product managers (9%), and they reported that they were both highly involved ($M = 6.61$ on a seven-point scale) and highly knowledgeable ($M = 6.57$ on a seven-point scale) about their firms' strategic decision making (Campbell 1955; Heide 2003). These results suggest that our sampling approach was successful in identifying appropriate key informants.

Survey Data Bias Assessment

We employed several procedures to validate our survey data, including checks for nonresponse bias, common method variance bias, and social desirability bias. We assessed nonresponse bias by using Standard & Poor's COMPUSTAT database to compare (using multivariate discriminant analysis) responding versus nonresponding firms on company sales volume, number of employees, Standard Industrial Classification codes, and assets. The Hotelling-Lawley test result was not significant ($T = 1.05$, $p > .10$), indicating no serious nonresponse bias.³

We assessed the possible threat of common method variance bias using several procedures. First, we conducted a follow-up survey approximately ten months after our initial

one by resending our survey to a randomly selected set of 48 informants who had participated in the initial study. We obtained completed surveys from 36 respondents. Correlation analysis reveals that among these 36 respondents, the initial and follow-up assessments of our key constructs exhibit a high degree of association (Pearson coefficients ranged from .68 to .87, $p < .01$).⁴ Second, we collected multiple informant data among a subset of 42 new respondents (not part of the first survey) from the same organizations in our initial survey. This survey gleaned 29 responses. Reliability analyses indicate that our key measures display high internal consistency between these two samples (Guttman split-half reliability r statistics ranged from .86 to .91). Finally, we assessed respondent accuracy by cross-checking responses on several items (e.g., firm employee, asset, ROE, firm experience) against actual archival data in COMPUSTAT. The results reveal a high consistency between the two sources (Guttman $> .80$ for each measure). Overall, these tests suggest that common method variance bias is not a concern.

To test for social desirability bias, we included a six-item measure ($\alpha = .76$) of socially desirable response bias that Strahan and Gerbasi (1972) developed.⁵ A series of comparative tests indicate that the influence of competitor orientation and CA on firm ROE is similar in models that include socially desirable response versus models that do not include this variable. Thus, social desirability bias does not seem to be a major concern.

Measures

We assessed all measures except actual firm profitability (ROE) with multiple items on a seven-point Likert-type scale anchored by "strongly disagree" (1) and "strongly agree" (7). Appendix A contains information about the specific items used in these measures.

We measured COS with a six-item scale (construct reliability [CR] = .86; see Table 1) we developed from the work of Day and Nedungadi (1994) and Narver and Slater (1990). This measure assesses the degree to which a firm strategically understands, senses, and responds to the strengths and weaknesses of its competitors.

⁴In this follow-up survey, we asked respondents whether they were still involved with the alliances they reported on in their initial survey. The vast majority (92%) answered yes to this question.

⁵Strahan and Gerbasi's (1972) scale of social desirable responding has six items: "I like to gossip at times"; "I have never deliberately said something that hurt someone's feelings"; "I'm always willing to admit it when I make a mistake"; "There have been occasions when I took advantage of someone"; "I sometimes try to get even rather than forgive and forget"; and "At times, I have really insisted on having things my own way."

Table 1
STUDY 1: DESCRIPTIVE STATISTICS

Measure	M	SD	AVE	CR	V1	V2	V3	V4
<i>Primary, Survey Data</i>								
V1: COS	6.13	1.06	.73	.86	1.00			
V2: COO	5.72	1.19	.71	.84	.21**	1.00		
V3: CA	4.67	1.36	.74	.88	-.12	-.14*	1.00	
<i>Secondary, Archival Data</i>								
V4: ROE	7.18	13.22	—	—	.17**	-.12	.27**	1.00

* $p < .05$.

** $p < .01$.

Notes: AVE = average variance extracted.

We assessed COO with four items ($CR = .84$) inspired by the work of Armstrong and Collopy (1996). This measure assesses the degree to which the primary purpose of the firm is to defeat rivals and eliminate marketplace competition.

We assessed CA intensity with five items ($CR = .88$). This measure assesses a firm's intensity of CA activities that entail cooperation in technology, R&D, new product development, cross-selling, and market segmentation (Das, Sen, and Sengupta 1998; Mizik and Jacobson 2003; Silverman and Baum 2002).

We assessed firm profitability by obtaining ROE information from the COMPUSTAT database for each of the participating firms. Following prior research (e.g., Mizik and Jacobson 2003; Rust, Moorman, and Dickson 2002), we used ROE lagged by one year. Because it represents return to stockholders, ROE is touted as "the true bottom-line measure of firm performance" (Ross, Westerfield, and Jordan 2001, p. 59, emphasis added).

We also employed control variables to control for potential confounds. Specifically, we obtained information about firm size (i.e., number of employees) and firm experience (i.e., number of years in operation) from COMPUSTAT. In addition, our survey incorporated measures from the work of Jaworski and Kohli (1993) to assess the degree of environmental turbulence (five-item scale, $CR = .83$) and market uncertainty (four-item scale, $CR = .79$).

Analysis and Results

Measure validity results. We assessed the validity of our multi-item measures using the two-step confirmatory factor analysis (CFA) approach that Anderson and Gerbing (1988) recommend. Overall model statistics reveal a chi-square of 511.3 ($p < .01$) with 298 degrees of freedom. The fit indexes for this model meet recommended standards (comparative fit index = .95, goodness-of-fit index = .92, adjusted goodness-of-fit index = .91, and root mean square error of approximation = .05), and each item has significant factor loadings ($p < .01$) on its theorized latent construct. All construct reliabilities exceed .70, suggesting that these measures have good internal consistency. Moreover, our analysis revealed no significant modification indexes or estimated residuals (e.g., Heide 2003). Thus, it appears that our measures display unidimensionality and convergent validity.

We assessed the discriminant validity of our measures using two approaches. First, we examined a series of chi-square difference tests by comparing the fit for pairs of constructs that were freely estimated with those that were constrained to unity (Anderson and Gerbing 1988). The results reveal that in each comparison, the unconstrained models fit the data better than the constrained models. Second, we compared the average variance extracted (AVE) for each of our constructs with the squared correlation between construct pairs (Fornell and Larcker 1981). The results show that the AVEs (smallest AVE = .70) exceed the squared correlations (largest squared correlation = .08) for all measures. In combination, these two tests provide evidence of the discriminant validity of our multi-item measures.

Hypothesis-testing procedure. We tested our hypotheses with a three-stage hierarchical regression model (cf. Slotegraaf, Moorman, and Inman 2003) to account for the possibility that a firm's competitor orientation influences its

intensity in engaging in CA. The equations we used in each of these procedures appear in Appendix B. Stage 1 regresses CA intensity on the two facets of competitor orientation (COS and COO) to obtain residuals that are free of the influence of competitor orientation. Stages 2 and 3 employ these residuals as predictors of our modeling procedure. Stage 2 tests the main effects of CA (H_1) and competitor orientation (H_2, H_4) by regressing ROE on COS, COO, the residuals of CA (both direct and squared), and a set of control variables. Finally, Stage 3 tests for interaction effects (H_3, H_5) by first regressing ROE on the residuals of CA (both direct and squared because of the hypothesized curvilinear relationship in H_1) and then regressing the coefficients of these residual effects on COS and COO. As Appendix B shows, Stage 3 is a full model that involves collapsing a series of sequential models.

Hypothesis-testing results. Because we are testing interactions among continuous variables, we follow the work of Aiken and West (1991) and mean-center all variables. The results of the Stage 1 analyses show that COO ($b = -.22, p < .01$) are significantly related to CA intensity, thus confirming the possibility that competitor orientation can influence a firm's level of alliance activities. However, the predicting power of this influence is rather modest ($R^2 = .08$). In contrast, as Table 2 shows, our results suggest that the predictors employed in Models 2 and 3 (i.e., Stages 2 and 3) explain a considerably larger amount of variance in ROE (Model 2: $R^2 = .21$; Model 3: $R^2 = .27$).

Model 2 reveals that the influence of CA on ROE is positive at a moderate intensity of CA activities but diminishes when the intensity of CA activities reaches a high degree (CA: $b = .20, CA^2: b = -.31$, both at $p < .01$), as we expected. Thus, our results support H_1 ; that is, a moderate intensity of CA activities has a stronger influence on firm profitability than either low or high CA intensity. As we also predicted, our results indicate that COS ($b = .19, p < .01$) have a positive and significant influence on firm ROE, in support of H_2 . Conversely (but as we expected), our findings reveal that COO have a significant and negative influence on ROE ($b = -.17, p < .01$), in support of H_4 .

Model 3 tests our hypotheses regarding the interactive effects of CA activities and competitor orientation on firm profitability (H_3 and H_5). The results show that the first-order interaction between CA and COS ($b = .21, p < .01$) is positive, whereas the second-order interaction ($CA^2 \times COS: b = -.18, p < .01$) is negative. In addition, the first-order interaction between CA and COO ($b = -.10$) is negative, whereas the second-order interaction ($CA^2 \times COO: b = .17$) is positive. Following the work of Aiken and West (1991), we plot these interactions in Figure 1. This figure shows that COS result in a stronger inverted U-shaped effect on profitability than that observed for CA alone and that COO essentially eliminate the inverted U-shaped effect of CA on profitability (and appears to turn it upside down; we elaborate on this finding in the "Discussion and Implications" section). These results lend considerable support to both H_3 and H_5 .

STUDY 2

Sample and Data Collection

The sampling frame for this study was a separate national mailing list of firms from the computer industry (i.e., computer hardware, networking, peripherals, and software/

Table 2
STUDY 1: HYPOTHESIS-TESTING RESULTS OF THE IMPACT OF COMPETITOR ALLIANCE INTENSITY ON FINANCIAL PERFORMANCE

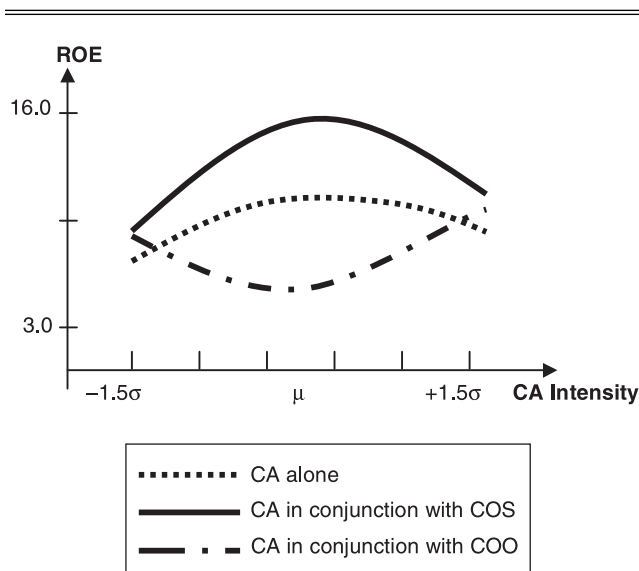
Variables	ROE		
	Model 1	Model 2	Model 3
<i>Control Variables</i>			
Environmental turbulence	-.14*	-.09	-.10
Market uncertainty	.16**	.17**	.14*
Firm size	.19**	.14*	.13*
Firm experience	-.07	-.10	-.08
<i>Direct Effects</i>			
CA		.20**	.19**
CA ²		-.31**	-.30**
COS		.19**	.16**
COO		-.17**	-.17**
<i>Interaction Effects</i>			
CA × COS			.21**
CA × COO			-.10
CA ² × COS			-.18**
CA ² × COO			.17**
Model F	7.72**	11.06**	12.81**
Adjusted R ²	.13**	.21**	.27**
Change in adjusted R ²		.08**	.06**

* $p < .05$.

** $p < .01$.

Notes: The variance inflation factor ranges from 1.21 to 3.37; all coefficients are standardized; CA values are residuals ($Y - Y_{\text{predicted}}$) not explained by the two facets of competitor orientation in order to account for the possible influence of competitor orientation on CA intensity.

Figure 1
THE EFFECTS OF CA INTENSITY AND COMPETITOR ORIENTATION ON ROE



service).⁶ The list contained the names of executives from 950 different firms. As a result of screening by telephone, 548 executives were prequalified and agreed initially to par-

⁶The computer industry has ample examples of cooperation among competitors, including the alliance between Microsoft and Sun (*Forbes* 2004) and cooperation among Apple, Sony, Microsoft, and Dell (Dyer and Singh 1998).

ticipate. We received 176 responses (a 32% response rate) after follow-up telephone calls and a second mailing. After eliminating responses with severe missing data or inadequate levels of informant knowledge/involvement, we were left with 159 usable responses. Our respondents included marketing vice presidents or managers (62%), CEOs (20%), and product managers (15%), and they reported high levels of involvement ($M = 6.74$ on a seven-point scale) and knowledge ($M = 6.79$ on a seven-point scale) about their firms' strategic decisions. We used the same survey measures and ROE data (from COMPUSTAT) as employed in our first study. We followed similar procedures to those used in Study 1 to assess nonresponse and common method variance bias. These procedures revealed that none of these biases are a serious concern.

Analysis and Results

Validity assessment results. Again, we assessed the validity of our multi-item measures using CFA procedures. Overall, CFA model statistics indicate that the chi-square for the measurement model is 439.3 ($p < .01$) with 298 degrees of freedom, and the fit indexes meet recommended standards (comparative fit index = .96, goodness-of-fit index = .93, adjusted goodness-of-fit index = .90, and root mean square error of approximation = .05). Construct reliabilities all exceed .80, suggesting that these measures have good internal consistency. Our measures also possess convergent validity because each item's estimated loadings on its related constructs are significant (all t-values exceed 4.11). The chi-square difference tests of free versus fixed pairs of constructs support discriminant validity. Descriptive statistics for these constructs appear in Table 3.

Hypothesis-testing results. We tested our hypotheses using the same procedures as employed in Study 1. As

Table 3
STUDY 2: DESCRIPTIVE STATISTICS

Measure	M	SD	AVE	CR	VI	V2	V3	V4
<i>Primary, Survey Data</i>								
V1: COS	6.48	1.16	.75	.88	1.00			
V2: COO	5.78	1.06	.71	.85	.20**	1.00		
V3: CA	3.59	1.13	.71	.84	-.10	-.15*	1.00	
<i>Secondary, Archival Data</i>								
V4: ROE	6.78	14.17	—	—	.19**	-.14*	.18**	1.00

* $p < .05$.
** $p < .01$.

Table 4
STUDY 2: HYPOTHESIS-TESTING RESULTS OF THE IMPACT OF COMPETITOR ALLIANCE INTENSITY ON FINANCIAL PERFORMANCE

Variables	ROE		
	Model 4	Model 5	Model 6
<i>Control Variables</i>			
Environmental turbulence	-.15*	-.14*	-.15*
Market uncertainty	.18**	.19**	.19**
Firm size	.22**	.17**	.19**
Firm experience	-.07	-.08	-.05
<i>Direct Effects</i>			
CA		.18**	.19**
CA ²		-.29**	-.27**
COS		.20**	.21**
COO		-.15*	-.18**
<i>Interaction Effects</i>			
CA × COS			.18**
CA × COO			-.09
CA ² × COS			-.14*
CA ² × COO			.15*
Model F	8.08**	7.02**	7.33**
Adjusted R ²	.14**	.21**	.27**
Change in adjusted R ²		.07**	.06**

* $p < .05$.
** $p < .01$.

Notes: The variance inflation factor ranges from 1.15 to 3.06; all coefficients are standardized; CA values are residuals ($Y - Y_{\text{predicted}}$) not explained by the two facets of competitor orientation in order to account for the possible influence of competitor orientation on CA intensity.

Table 4 shows, the influence of CA on ROE is positive at a moderate intensity of CA activities, but it diminishes at a high intensity of CA (CA: $b = .18$, $p < .01$; CA²: $b = -.29$, $p < .01$, respectively). These results provide support for H₁. As we expected, the main effect of COS ($b = .20$, $p < .01$) on ROE is positive and significant, in support of H₂. In addition, COO are negatively related to ROE ($b = -.15$, $p < .05$), in support of H₄. Because the first-order interaction between CA and COS ($b = .18$, $p < .01$) is positive and the second-order interaction (CA² × COS: $b = -.14$, $p < .05$) is negative, H₃ is supported. Finally, H₅ receives support because the first-order interaction between CA and COO ($b = -.09$) is negative and the second-order interaction item is positive (CA² × COO: $b = .15$, $p < .05$). Overall, these findings are consistent with those of Study 1, providing evidence of the validity and generalizability of our conceptualization.

DISCUSSION AND IMPLICATIONS

Do alliances with rivals influence the financial performance of firms, and how does this influence vary according to

their levels of competitor orientation? Our research attempted to tackle these questions by examining the interplay between a firm's alliance with its competitors and its orientation toward them. Using a combination of both survey and archival data, our two studies reveal that this interplay is more complex than current literature recognizes. It seems that CA activities and competitor orientation have both financial advantages and dark sides that need to be carefully balanced.

Theoretical Implications

Organizational and marketing strategists have long espoused the idea that to achieve superior profitability, a firm must gain and sustain a marketplace advantage over its competitors (e.g., Barney 1991; Day and Wensley 1988; Dickson 1992; Porter 1980). However, marketplace competition is only a small part of a much larger competitive landscape (Prahalad 1995), beyond which lies a large arena in which competitor firms can and do cooperate for mutually beneficial gains (e.g., through joint R&D, product development). Thus, the rivalry view that is dominant in existing

studies neglects the benefits of CA, such as greater access to resources and expanded market opportunities (Ahuja 2000; Lado, Boyd, and Hanlon 1997; Luo, Slotegraaf, and Pan 2006). Our research enriches the growing literature on the consequences of CA by providing evidence that (a moderate intensity of) CA activity appears to promote firm profitability. This finding complements and extends prior research, which has largely focused on perceptions of new product development success (e.g., Rindfleisch and Moorman 2001; Sividas and Dwyer 2000).

To date, the emerging literature on CA has been enthusiastic about their benefits and thus has placed little focus on their potential negative consequences (cf. Rindfleisch and Moorman 2003). Our research indicates that these alliances may harbor a dark side for their participants. Specifically, a high intensity of alliance activity appears to have a negative influence on profitability. This finding supports the theory of "opportunistic exploitation" (Das and Teng 2000; Williamson 1985) and the notion that cooperation with rivals should be carefully bounded. By drawing a connection between our findings and those of Rindfleisch and Moorman (2003), we surmise that high-intensity CA may inhibit firm performance by dulling its customer focus. However, other potential factors may cause performance to suffer, which is an area ripe for further research.

Another area that warrants particular attention is the performance-related impact of various forms of CA activities (e.g., upstream alliances, such as R&D consortia, versus downstream alliances, such as comarketing agreements).⁷ Prior research is equivocal on this issue. For example, Rindfleisch and Moorman (2001, 2003) suggest that upstream alliances are typically formed to enhance long-term learning and thus are less likely to enhance short-term profit. Conversely, Das, Sen, and Sengupta (1998, p. 29) argue that "firms entering technological alliances may have products in the early stages of their life cycles and stand to gain more than firms entering marketing alliances simply because the former have more time in which to capture benefits."

To shed light on this debate, we explored the relative effects of upstream (i.e., R&D, new product, technology improvement) versus downstream (i.e., market segmentation, cross-selling) CA activities on firm performance and found that upstream alliances (direct effect: $b = 16, p < .01$; curvilinear effect: $b = -.26, p < .01$) have a stronger impact on firm financial performance than downstream alliances (direct effect: $b = 12$, not significant; curvilinear effect: $b = -.19, p < .01$). These results are congruent with those of Calabrese and Baum (2000) and Schakenraad and Hagedoorn (1994), who find that engaging in R&D and technological consortia results in higher profits than other types of alliances. However, additional research is needed to confirm the relative impact of different types of alliance activities and to assess the specific mechanisms that underlie the nuances between upstream and downstream CA.

Beyond documenting the direct effects of CA on financial returns, our research also provides evidence that these alliances interact with both facets of competitor orientation

(i.e., strategies and objectives) to influence firm performance. Specifically, a moderate intensity of CA coupled with COS appears to be most beneficial to financial performance. This finding provides evidence that this particular facet of a competitor orientation enhances the positive-sum returns associated with CA. The notion that competitor orientation can flourish under conditions of cooperation with rivals is a fresh idea that has received little consideration in the literature and one that calls for additional investigation.

Notably, our results suggest that competitor orientation in the form of zero-sum objectives not only weakens the inverted U-shaped relationship between CA intensity and firm profitability but also appears to turn it inside out, into a U-shaped relationship. That is, COO are less harmful for firms with high CA intensity than for firms with moderate CA intensity. In interpreting this finding, we suggest that high CA intensity can channel COO in a less destructive direction (Calabrese and Baum 2000; Das, Sen, and Sengupta 1998), whereas a moderate intensity of CA may exacerbate the negative effects of COO, such as bloody price wars that hinder firm performance (Armstrong and Collopy 1996; Jaworski, Kohli, and Sahay 2000). Indeed, prior research suggests that high CA intensity is often motivated by perceptions of a common threat, such as the emergence of a new foreign competitor or a change in governmental regulations (Rindfleisch and Moorman 2001). Although they may still possess COO, participants in high-intensity CA may channel their focus, resources, and energies on defeating this new threat (and, thus, place less attention and emphasis on mutually destructive competitive actions and reactions).⁸ We believe that this finding contributes to the understanding of the hidden hazards of focusing on zero-sum objectives, such as market share (e.g., Kohn 1986). With a few exceptions (i.e., Armstrong and Collopy 1996; Rindfleisch and Moorman 2003), the downside of competition is an issue that has been largely neglected. Our findings suggest that this issue deserves further attention because the negative implications of such objectives appear to be intricately connected with a firm's CA activities and, perhaps, its broader network of interfirm relationships. Thus, our research also contributes to the growing literature on the dark side of relationship marketing (e.g., Atuahene-Gima and Li 2002; Grayson and Ambler 1999; Selnes and Sallis 2003).

Finally, our findings may help explain the conflicting literature regarding the outcomes of a competitor orientation (e.g., Armstrong and Collopy 1996; Narver and Slater 1990) by providing a finer-grained portrayal of this construct. Our results indicate that a competitor orientation may have divergent (positive or negative) influences, depending on the dimensions (strategies or objectives) of competitor orientation under consideration. Thus, further research may benefit by conceptually clarifying the specific facet of competitor orientation (i.e., objectives and strate-

⁷We gratefully acknowledge this suggestion by an anonymous reviewer.

⁸For example, during the early 1980s, rivals in the U.S. semiconductor industry engaged in a reprieve from their cutthroat price-cutting practices while operating as partners in the SEMATECH consortium designed to battle the emerging Japanese semiconductor industry (Grindley, Mowery, and Silverman 1994), which helped the bottom line of SEMTECH partners.

gies) that is related to the research focus because these facets may lead to differential outcomes.

Managerial Implications

As reflected in the old saying “Keep your friends close; keep your enemies closer,” our results indicate that firms may financially benefit from forming alliances with their rivals. Thus, we encourage marketing managers to eschew the dogma of marketing warfare and to consider the potential benefits of not only competing with their rivals but also building alliances with them. As Jap (2001) suggests, these types of alliances appear to lead to “expanded pie” effects by creating mutually beneficial higher profits from increased market demand. Indeed, “success in today’s business world often requires that firms pursue both competitive and cooperative strategies simultaneously” (Lado, Boyd, and Hanlon 1997, p. 111).

However, cooperation with rivals needs to be carefully considered and judiciously executed because an over-reliance on highly intensive CA may be just as harmful as underusing such alliances. Excessive cooperation may lead to “free riding” and opportunistic exploitation, a potential loss of proprietary technological and marketing capabilities, and a possible dulling of a firm’s incentives to stay customer focused (Rindfleisch and Moorman 2003; Williamson 1985).

Finally, despite substantial evidence to the contrary (e.g., Anterasian and Graham 1989; Armstrong and Collopy 1996; Jacobson and Aaker 1985), many managers subscribe to the belief that being competitor oriented means a zero-sum rivalry in which maximizing market share or winning a price war is beneficial to the firm’s bottom line. The popular refrain of being competitor oriented may contribute to this belief. Our research indicates that this refrain may need to be modified because our two studies provide evidence of the advantages of building alliances with competing firms. Thus, managers should be competitor oriented but in a careful manner that does not exclude the possible financial benefits of working with rivals.

APPENDIX A: KEY MEASURES⁹

COS (Based on Barney 1991; Day and Nedungadi 1994; Narver and Slater 1990; Study 1: $CR = .86$, $AVE = .73$; Study 2: $CR = .88$, $AVE = .75$).

Please answer the following questions regarding your perceptions and beliefs about your competitors:

- We target customers where we have an opportunity to obtain competitive advantage.
- Senior executives pay little attention to competitors’ strategies. (reverse coded)
- Our business responds rapidly to competitors’ actions that threaten us.
- We regularly review the core capabilities of our current and potential competitors. (dropped)
- Top managers frequently meet with each other to exchange information of competitors’ strengths and weaknesses.
- It is important for our business to develop strategies that are competitor-oriented in the long run.

⁹All measures were assessed on seven-point Likert scales (1 = “strongly agree,” and 7 = “strongly disagree”).

COO (Based on Armstrong and Collopy 1996; Day and Wensley 1988; Jaworski, Kohli, and Sahay 2000; Study 1: $CR = .84$, $AVE = .71$; Study 2: $CR = .85$, $AVE = .71$)

Please answer the following questions regarding your perceptions and beliefs about your competitors:

- Our executives’ major objective is to eliminate our competitors.
- The primary purpose of our business is to be better than our competitors.
- We intend to beat our major competitors in all ways (e.g., price below competitors).
- Our goal is to defeat the competing firms in the marketplace even at the expense of our firm’s profits.

CA (Based on Das, Sen, and Sengupta 1998; Mizik and Jacobson 2003; Study 1: $CR = .88$, $AVE = .74$; Study 2: $CR = .84$; $AVE = .71$)

Regarding the intensity of the alliance activities with your competitors, please answer the following questions:

We have established cooperative agreements on:

- R&D with competing firms.
- new product development with competing firms.
- technology improvement with competing firms.
- market segmentation with competing firms.
- cross-selling with competing firms.

APPENDIX B: THREE-STAGE HIERARCHICAL REGRESSION MODEL DETAILS

Stage 1

To obtain $CA_{\text{residual}} = CA - CA_{\text{predicted}}$,

$$CA_i = \alpha_1 + \beta_{11}COS_i + \beta_{12}COO_i + \epsilon_i.$$

Stage 2

To test H_1 , H_2 , and H_4 ,

$$ROE_i = \alpha_3 + \beta_{21}CA_{\text{residual}} + \beta_{22}CA_{\text{residual}}^2 + \beta_{23}COS_i + \beta_{24}COO_i + \beta_{\text{cova}}\text{Covariates}_i + \epsilon_i.$$

Stage 3

To test H_3 and H_5 ,

$$ROE_i = \alpha_3 + \beta_{31}CA_{\text{residual}} + \beta_{32}CA_{\text{residual}}^2 + \beta_{\text{cova}}\text{Covariates}_i + \epsilon_i, \text{ where}$$

$$\beta_{31} = \mu_1 + \beta_{41}COS_i + \beta_{42}COO_i + \epsilon_i, \text{ and}$$

$$\beta_{32} = \mu_2 + \beta_{51}COS_i + \beta_{53}COO_i + \epsilon_i.$$

Collapsing this Stage 3 equation produces the full model:

$$ROE_i = \alpha_f + \beta_{f1}CA_{\text{residual}} + \beta_{f2}CA_{\text{residual}}^2 + \beta_{f5}COS_i + \beta_{f7}COO_i + \beta_{f8}CA_{\text{residual}} \times COS_i + \beta_{f10}CA_{\text{residual}} \times COO_i + \beta_{f11}CA_{\text{residual}}^2 \times COS_i + \beta_{f13}CA_{\text{residual}}^2 \times COO_i + \beta_{\text{cova}}\text{Covariates}_i + \epsilon_i.$$

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