Strategic Management Journal, Vol. 18:2, 149–157 (1997)

RESEARCH NOTES AND COMMUNICATIONS

STRATEGIC GROUPS AND RIVALROUS FIRM BEHAVIOR: TOWARDS A RECONCILIATION

KEN G. SMITH, CURTIS M. GRIMM and STEFAN WALLY
College of Business and Management, University of Maryland, College Park, Maryland, U.S.A.

GREG YOUNG
Department of Business Management, North Carolina State University, Raleigh, North Carolina, U.S.A.

This research examines the question of whether rivalry is greater between or within strategic groups by utilizing more direct, dynamic and fine-grained measures of rivalry. Examining the competitive actions of firms in different strategic groups to determine if competitive responses were more likely to occur from firms in the same strategic group, or from firms in different strategic groups, the research found that competitive responses cannot be predicted by strategic group membership. Importantly, however, strategic group membership is a predictor of the manner by which firms compete with one another, or the frequency with which they undertake competitive actions, cut prices, instigate warfare and imitate rivals. © 1997 by John Wiley & Sons, Ltd.

Many scholars have advocated strategic groups as a mechanism for understanding strategic behavior, competition, and differential firm performance in an industry (Porter, 1976, 1979, 1980; Caves and Porter, 1977; Galbraith and Schendel, 1983; Cool and Schendel, 1987; Hatten and Hatten, 1987). Hatten and Hatten contended that strategic groups segment firms into 'sets of companies whose competitors, actions and results are relevant to each other' (1987: 329). Academic interest in strategic groups has stemmed largely from the theoretical link between group membership and firm profitability (Porter, 1976, 1979; Caves and Porter, 1977). The central argument has been that high performing groups are sheltered from rivalry by mobility barriers, which has the effect of keeping potential rivals from switching groups. As Porter noted: 'Those strategic groups within an industry that possess high mobility barriers are relatively more insulated from rivalry by their place in the configuration of strategic groups' (1979: 215). Porter thus claimed that mobility barriers provide a 'major reason why some firms in an industry will be persistently more profitable than others' (1980: 134). Nonetheless, research has not found consistent performance differences between strategic groups (Cool and Dierickx, 1993).

Implicit in the concept of mobility barriers is the idea that the level of rivalry differs within and between groups (Porter, 1976, 1979; Peteraf, 1993; Cool and Dierickx, 1993). However, the literature diverges as to the nature of these differences. On the one hand, it has been suggested that rivalry will be lower within a group because firms will be better able to recognize their mutual dependence and cooperate, or tacitly collude with one another (Caves and Porter, 1977; Porter,

Key words: rivalry; competitive dynamics; strategic groups

CCC 0143–2095/97/020149–09

Received 22 September 1993
Final revision received 19 March 1996

1976, 1979; Peteraf, 1993). The contention has been that members of the same groups will have similar endowments of resources, which will lead them to act and react to competitive disturbances in similar ways. Such firms will be better able to predict the actions and reactions of each other and recognize mutual dependence. Firms from the same group will also have homogeneous strategies and goals which may yield almost identical sources of competitive advantage over one another. The scant possibilities of gaining advantage over firms in the same group by differentiation will facilitate the tacit coordination of actions (Scherer and Ross, 1990). Finally, firms with similar resource endowments will likely have common suppliers and customers, which can enhance communication and coordination in an industry (Peteraf, 1993).

At the same time, there is a case for strong rivalry between groups. Differences between groups imply heterogeneous resources and varying patterns of competitive behavior, which will make it difficult to predict and coordinate actions with rivals across groups (Porter, 1980). Moreover, resource heterogeneity will yield many different strategies with alternative views on how to compete. As long as rivals across groups can select from alternative strategies, coordination will be difficult to achieve (Scherer and Ross, 1990). The above arguments, which serve as the backbone of strategic group theory and current industrial organization economic explanations of performance differences among firms within an industry, suggest that the level of rivalry will be greater between groups than within groups.

On the other hand, researchers have also argued that rivalry will exist within rather than between groups. Coordination agreements can easily break down (Kwoka and Ravenscraft, 1986), particularly when there are a large number of competitors within a group (Scherer and Ross, 1990), when competitors within the group are of equal size (Kwoka and Ravenscraft, 1986), or when there is an absence of history, leadership or trust between group members (Scherer and Ross, 1990). The resource-based view of the firm suggests that rivalry will be intense when resources are homogeneous among firms, as in the case where all firms are in the same group (Barney, 1991). Homogeneity implies that firms of similar capability are pursuing the same goal with the same strategy, and have no unique resources or isolating mechanisms to create a sustainable advantage. Under these conditions, no firm will be capable of achieving advantage (Barney, 1991). Hatten and Hatten (1987) argue that because firms within a group have homogeneous resources, they will be more likely to contest each other's market territory. These arguments suggest that rivalry may be greater within groups than between groups.

No general consensus thus has emerged on the question of whether rivalry should be greater within or between groups. Moreover, the limited empirical research on the topic, while innovative and insightful, has not been entirely conclusive. Peteraf (1993) tested the within/between-group hypothesis with a unique sample of monopoly city-pair markets in the U.S. airline industry. Defining strategic groups in terms of formerly regulated carriers vs. new entrants after deregulation, she found that rivalry was greater *between* the two groups than within groups. Cool and Dierickx (1993) examined rivalry among U.S. pharmaceutical firms over a 20-year period. They classified firms into different strategic groups based on the mean vector of strategy variables. They observed a shift from *within*-group rivalry to between-group rivalry over time with concurrent changes in strategic group structure.

Although the Peteraf (1993) and Cool and Dierickx (1993) studies provide meaningful empirical contributions to the within- and between-group rivalry question, neither study directly measures interfirm rivalry. For example, Peteraf (1993) measured rivalry based on average price/cost ratios. The assumption was that a low price/cost ratio implied high rivalry (e.g., low profits). In contrast, Cool and Dierickx (1993) inferred rivalry from a Herfindahl index calculated for each firm for the market segment the firm participates in, excluding the focal firm's own market share. The assumption was that a low Herfindahl index meant high rivalry or that 'firms adversely affect each other' (1993: 50). Both these studies thus assess rivalry inferentially by drawing on the well-known structure–conduct–performance paradigm from industrial organization economics.[1] Peteraf's study therefore

[1] This paradigm asserts that industry structure, in particular, the number of competitors or Herfindahl index, will affect conduct, in particular, the nature of rivalry within the industry. The nature of rivalry will, in turn, affect industry performance, in particular, profitability.

employs a measure of performance, from which conduct or rivalry is inferred, while Cool and Dierickx use a measure of structure, from which conduct or rivalry is inferred. Neither study *directly* assessed rivalry or the actual competitive interaction of firms with one another.

In perhaps its most fundamental form, rivalry involves the actions and reactions of firms to one another (Schumpeter, 1950). Porter (1980) also conceived of rivalry in terms of moves and counter moves. He noted that 'if moves and counter moves escalate, then all firms in the industry may suffer' (1980: 17). Drawing upon a set of dynamic series of actions and reactions of U.S. domestic airlines to one another over an 8-year period, the present research actually assesses conduct or interfirm rivalry as opposed to inferring rivalry from measures of structure or performance. In particular, the research identifies strategic group membership of pairs of acting and responding firms. We study the actions of firms in different strategic groups to determine if competitive responses are more likely to occur from firms in the same strategic group or from firms in different strategic groups. In addition to measuring actions and reactions within and between groups, the research examines the manner by which firms compete with one another, for example, a firm's propensity to cut prices, instigate warfare or imitate a rival's behavior. The current research therefore attempts to more closely measure rivalry within and between strategic groups.

We first classify airlines into strategic groups based on cluster analysis. Strategic group membership is then used to examine the level of rivalry and the intensity of competition between and within groups. Whereas strategic groups are constructed from annual report information, the data on rivalry are drawn from an independent, structured content analysis of a major industry publication.

METHOD

The U.S. domestic airline industry was selected for study because of its acknowledged competitiveness, well-known and complete set of competitors, clearly defined boundary (single businesses) and rich availability of public information. The observations include all leading airlines operating over the years 1978–86 who were acting and reacting with regard to one another.[2]

Measurement of strategic groups

Airlines in this study were classified into strategic groups based on cluster analysis and the procedures were consistent with previous strategic group research (e.g., Galbraith and Schendel, 1983; McGee and Thomas, 1986; Cool and Schendel, 1987; Hatten and Hatten, 1987; Smith, Guthrie, and Chen, 1989; Cool and Dierickx, 1993). Consultation with industry experts and the above-cited strategic group literature suggested that an airline's choice in the deployment of its resources manifests itself primarily in the firm's cost position, marketing expenditures, management characteristics, and scope of operation. Accordingly, specific variables that reflect the deployment of these resources were used to classify airlines into different groups based on cluster analysis. The definitions of these variables and the complete procedures used to cluster firms can be obtained by writing to the first author.

Three clusters were identified. Cluster one, which is labeled 'niche-seeker', ranks lowest in the number of airports served. This cluster also has the highest costs and the longest trip lengths. The high costs may be attributable to the narrow geographic scope and the lack of scale economies. Cluster two, which is labeled 'high-end flyer', ranks first in the portion of each sales dollar allocated to marketing and also has the leading position in first class passenger revenue. Airlines in this cluster also emphasize short trip length. Cluster three, which is labeled 'entrenched-dominant', has the lowest operational and marketing costs of any group, serves the broadest number of airports and has the managers with the most industry experience.

[2] Of course, for rivalry to exist firms must be interdependent; that is, firms must directly compete with one another for the same customers (Caves and Porter, 1977). Thus, for a meaningful assessment of within- and between-group rivalry, the industry must be defined such that firms compete with one another; otherwise stated, firms within and between groups must be just as likely to be competitors. The U.S. domestic airline industry fits this definition as each airline is capable of contesting customers with each and every other airline (Baumol, 1982).

Measurement of rivalry

The method utilized to identify the competitive behavior of firms has been reported elsewhere (e.g., Smith *et al.*, 1991; Chen, Smith, and Grimm, 1992). We will briefly summarize the details of this method. In short, a series of important actions and responses in the U.S. airline industry were identified from an 8-year review of each issue of *Aviation Daily*.[3] As a result of these procedures a total of 856 actions, 191 of which provoked at least one response, and 418 responses were identified over the 8-year period. Alternative measures of competitive behavior were calculated from these actions and responses.

We distinguish responses from actions so as to identify which firms are taking actions and which firms are responding. In differentiating actions from responses we can determine if responses occurred from firms within the same strategic group or from firms in different strategic groups, and we can also calculate a rich set of measures gauging a firm's competitive behavior.[4]

Competitive activity was defined as the total number of competitive moves (including actions and responses) a firm undertook in a given year. It was calculated by counting the number of actions and reactions for each firm within each year of the data collection. For example, a number 4 on this measure would indicate that four actions or reactions were undertaken by the firm in given year.

Degree of rivalry instigation was defined as the number of first moves a firm undertook to instigate rivalry in a given year divided by the total number of moves it had taken (the difference between the number of first moves and the total number of moves is the number of times the firm was not moving first to instigate competitive warfare, e.g., was a follower). Thus, a high score on this measure indicates that a firm was instigating rivalry, while a low score suggests the firm was generally a reactor.

Proclivity toward price cutting was measured as the proportion of price-cutting moves (actions and responses) divided by the total number of moves that a firm undertook in a given year.

Speed of response was measured by the average amount of time in days it took a firm to respond to a competitor's action. The amount of time was measured by the temporal difference between the dates of a specific competitive action and the response. Thus, if a firm responded four times in 1982 at response intervals of 10, 12, 14, and 16 days, its average response time for 1982, 13 days, would be employed in analyses.

Tit-for-tat imitation or the degree to which a response imitated an action was measured in terms of the concurrence of the action type and the response type. An imitation score was created to measure the degree of duplication involved in each response. This imitation score was calculated so that when the type of response was the same as the type of action (for example, a price cut in response to a price cut), the imitation score equaled 1; when the response type was not the same as the action type (for example, a price cut in response to a new product introduction), the imitation score equaled 0. A high score for a firm would indicate a propensity for tit-for-tat imitation, whereas a low score would indicate the opposite.

Descriptive statistics for all the competitive behavior variables are reported in Table 1.

[3] *Aviation Daily* is a 50-year-old industry publication to which members of the industry (consultants, brokers, suppliers, etc.) subscribe on a yearly basis. Other publications seem to merely duplicate the information found in *Aviation Daily*. Competitive actions or moves were considered significant and important only if they were mentioned in *Aviation Daily*. A response was identified by a key word search of each issue of *Aviation Daily*. Key words included 'in responding to . . .', 'following . . .', 'under the pressure of . . .', and 'reacting to . . .', etc., for example, *Aviation Daily* reported that 'Under the pressure of American Airlines' planned hub creation, Piedmont revealed a statewide expansion program in Florida' (10 July, 1985). In this example, Piedmont's Florida expansion was identified as responding to American Airlines' hub creation.

[4] Although our measures of rivalrous behavior have substantial face validity and intuitive appeal (frequency of moves, first to instigate rivalry, degree of action imitation, proportion of price cuts vs. other types of moves, and speed of response), there is the question of how these measures relate to the common industrial organization inferential measure of firm conduct or rivalry, the Herfindahl index of market structure. The Herfindahl measure used in this comparison is calculated for each firm for markets in which the airline operates. This Herfindahl index is significantly correlated with three of our five measures of competitive behavior. The larger the Herfindahl ratio for a firm or the more concentrated the market it competes in (e.g., less rivalrous), the fewer the price cuts ($r = -0.17$; $p < 0.01$); the lower the imitation ($r = -0.23$; $p < 0.01$) and the longer the response times ($r = 14$; $p < 0.08$). The Herfindahl measure was unrelated to the number of competitor actions and the likelihood of warfare instigation. Thus the Herfindahl measure does predict the level of conduct or interfirm rivalry, as would be predicted from the structure–conduct–performance paradigm, but this measure does not predict all aspects of a firm's competitive behavior.

Table 1. Descriptive statistics and correlations of strategic conduct variables[a]

Conduct variables	Means	S.D.	Correlations[b] 1	2	3	4
Competitive activity	7.11	7.48				
Degree of rivalry instigation[c]	0.67	0.36	0.16*			
Price cutting[c]	0.19	0.24	0.24**	0.17*		
Speed of response[d]	14.87	17.97	−0.13	0.17+	−0.31**	
Tit-for-tat imitation[d]	0.80	0.30	0.11	0.02	−0.27**	−0.08

+p < 0.10; *$p < 0.05$; **$p < 0.01$
[a]$N = 209$, except speed of response ($N = 101$) and tit-for-tat imitation ($N = 102$).
[b]Two-tailed significance reported.
[c]As percentage of all moves.
[d]Response lag in days.

Statistical analysis

A chi-square statistic was used to examine whether rivalry is greater between groups than within groups. For this research, the chi-square tests whether the actions of a firm in one strategic group are more likely to be responded to by firms in the same group or by firms in another group. A significant chi-square would reveal that the responses of firms are linked to strategic group membership, a finding that would suggest rivalry is greater within groups than between groups. In other words, if rivalry is identical within and between groups, it should be equally likely that responses to competitive actions come from within and between groups.[5]

Multiple analysis of variance (MANOVA) were applied to test for differences in competitive behavior of firms across strategic groups. Strategic group membership served as the independent variable in the MANOVA and the five competitive behavior variables acted as dependent variables. A significant *F*-statistic at the MANOVA level would suggest that competitive behavior of firms was more similar within a strategic group than between groups (the variance is greater between groups than within groups). One-way analyses of variance were next applied to examine the specific univariate differences. Contrasts among group means tested by a *t*-statistic were also calculated. The contrast test compares the mean value for a focal group with the combined means of the remaining groups.

RESULTS

Table 2 reveals the relationship between competitive action and response by strategic group membership. The non-significant chi-square suggests that the likelihood of competitive responses cannot be predicted by group membership (chi-square = 3.30, $p = 0.509$). That is, responses to competitive actions are just as likely to occur from outside a strategic group as from within the group. Thus, in terms of actions and reactions, rivalry cannot be predicted by strategic group membership.[6]

While the chi-square statistics were not significant, the MANOVA tests indicate that the patterns of competitive behavior, or the manner by which firms compete with one another, are significantly different among the groups. Refer-

[5] Assume that there are two groups, with 20 total overall actions in the industry. Ten responses from within the group and 10 responses between groups would indicate that within- and between-group competition are identical. However, 18 responses within the group and two outside the group would indicate greater within-group rivalry. In contrast, 18 responses from outside the group suggests stronger competition between than within. Methodologically we note that the chi-square procedure is not sensitive to the number of observations in each cell. The chi-square directly measures the relationship between observed and expected. The expected estimate is based on the amount of activity of each group and the degree to which rivalry takes place intra- or inter-group. If one group has more firms or more competitive activity per firm, it does not bias the results as the chi-square is only assessing how a given degree of activity is distributed intra vs. intra-group.

[6] Defining groups in terms of Peteraf's (1993) classification or the Department of Transportation size classification revealed essentially the same result.

Table 2. Within- and between-group rivalry

Actions:	Cluster classification[a]			
	Entrenched-dominant[b]	High-end flyer[c]	Niche-seeker[d]	Row subtotal
Responses:				
Entrenched-dominant				
Moves	271	38	2	311
Row %	87.1%	12.2%	0.6%	79.7%
Col. %	80.4%	74.5%	100.0%	
High-end flyer				
Moves	62	13		75
Row %	82.7%	17.3%		19.2%
Col. %	18.4%	25.5%		
Niche-seeker				
Moves	4			4
Row %	100.0%			1.0%
Col %	1.2%			
Column total				
Moves	337	51	2	390
%	86.4%	13.1%	0.5%	100.0%
Likelihood ratio Chi-square				3.30

[a]Airlines listed in footnotes b–d are determined by the category in which a firm appears for a majority of observation years.
[b]Entrenched-dominant: American, Braniff, Continental, Delta, Eastern, Northwest, Pan Am, Transworld, United, USair, Western.
[c]High-end flyer: AirCal, Aloha, America West, Frontier, Hawaiian, Midway, NY Air, Ozark, Pacific SW, People Express, Piedmont, Republic, Southwest.
[d]Niche-seeker: Air Florida, Alaska, Jet America, Transamerica, World.

ring to Table 3, univariate analyses reveal significant relationships between strategic group membership and competitive activity (frequency of moves), degree of rivalry instigation (who moves first to instigate rivalry), tit-for-tat imitation measure (degree of action reaction imitation) and proclivity for price cutting (proportion of price cuts vs. other types of moves). Speed of response did not differ significantly across the alternative definitions. Therefore, although the likelihood of a competitive response to an action cannot be predicted by strategic group membership (Table 2), the nature or the manner by which firms compete does vary significantly based on group membership (Table 3). This means that although there appears to be no pattern or predictability as to where a competitive response may come from based on group membership, the way in which airlines engage one another in competition does differ significantly. In particular, entrenched-dominants take more action, are more likely to cut prices, and are more likely to imitate rivals from other groups, but they are also less likely to instigate warfare. In contrast, warfare seems to be instigated by firms who seek niches or high-end positions.

DISCUSSION

The purpose of this research was to advance our understanding of the relationship between strategic group membership and rivalry by examining fine-grained and more dynamic measures of rivalry. Indeed, the fine-grained measures used in this research suggest that rivalry is a complex multidimensional construct—a phenomenon whose complexity would not be revealed by

Table 3. Strategic conduct: Analysis of means

Conduct variables	Classification			
	Entrenched-dominant[e]	High-end flyer[f]	Niche-seeker[g]	*F*
Competitive activity	12.31[c]	4.55[c]	1.59[c]	53.12***
Degree of rivalry instigation[a]	0.68[d]	0.71[c]	0.52[c,d]	3.88*
Price cutting[a]	0.29[c,d]	0.11[c]	0.13[d]	15.78***
Speed of response[b]	13.91	17.02	19.00	0.35
Tit-for-tat imitation[a]	0.86[c]	0.67[c]	0.75	4.53*

$^{+}p < 0.10$; $*p < 0.05$; $**p < 0.01$; $***p < 0.001$
[a]As percentage of all moves.
[b]Response lag in days.
[c]Group pair significantly different at the 0.10 level.
[d]Group pair significantly different at the 0.10 level.
[e]Entrenched-dominant ($N = 83$), except speed of response and tit-for-tat imitation ($N = 71$).
[f]High-end flyer ($N = 89$), except speed of response ($N = 28$) and tit-for-tat imitation ($N = 29$).
[g]Niche-seeker ($N = 37$), except speed of response and tit-for-tat imitation ($N = 2$).

coarse-grained static measures of structure, such as the Herfindahl. For example, the analyses reveal that responses to competitive actions can occur both between and within groups. That is, airlines appear just as likely to respond to the actions of rivals from different groups as they are to respond to firms in their own group. Interestingly, 100 percent of the actions taken by niche-seeker airlines, and 83 percent of the actions undertaken by high-end flyers, were responded to by entrenched-dominants. Alternatively, 100 percent of the responses by niche-seekers, and 75 percent of the responses by high-end flyers, were to the actions of entrenched-dominants. Thus, there appear to be few barriers or impediments for firms in responding to the competitive actions of airlines in other strategic groups.

Nonetheless it is noteworthy that all of the action/reaction rivalry is between niche-seekers and entrenched-dominants, and between high-end flyers and entrenched-dominants; there appears to be no competitive interaction between niche-seekers and high-end flyers. This finding suggests that there may be barriers blocking niche-seekers from engaging high-end flyers, but such barriers are ineffective in blocking rivalry between high-end flyers and entrenched-dominants. Potential barriers in the airline industry might include gate restrictions, customer switching costs developed through frequent flyer programs, and scale and scope economies. Analogous to the arguments of Hatten and Hatten (1987), who suggest that mobility barriers may be effective for one group and not for another, there may also be 'rivalry barriers' which apply to competitive interactions between some groups but not others. This interpretation is consistent with a resource-based view of the firm. For example, Barney (1991) suggests that firms seeking to react to rivals in another group can only do so effectively if they possess the strategically relevant resources to do so. When resources are not perfectly mobile and not homogeneously distributed among firms, such constraints may be effective in preventing some groups from reacting to others (Barney, 1991).

Concerning the level of 'within'-group rivalry, the results are equivocal. Interestingly, rivalry is most intense among entrenched-dominants, as 87 percent of the actions of entrenched-dominants were responded to by other entrenched-dominants. Entrenched-dominants are thus not only acting and responding toward airlines in other strategic groups, but their competitive behaviors also contribute to within-group rivalry. In terms of competitive behaviors, entrenched-dominants were constantly engaging in competitive activity with heavy tit-for-tat imitation and frequent price cutting. Such competitive interaction may be unstable and destructive, perhaps undermining the potential for coordination of competition within the group.

In contrast, there is no within-group rivalry among niche-seekers and very little within-group

rivalry among high-end flyers. Indeed, the competitive behavior of these airlines appears less warlike. For example, they engage in less price cutting, experience a lower amount of tit-for-tat imitation, and also do not engage in the level of competitive activity compared to entrenched-dominants. We speculate that high-end flyers enjoy greater strategic distance on the key dimension of percentage of first class travel, a differentiation aspect of strategy, or a firm resource, that rivals perhaps find difficult to imitate. Overall, the fine-grained nuances of competitive behavior described above would not be discernible with static inferential measures.

Interestingly, key fine-grained aspects of airlines' competitive behavior, such as its competitive activity, degree of rivalry instigation, tit-for-tat imitation and proclivity for price cutting, can be predicted by group membership. This may be due to differences in firm resource endowments across the groups. For example, niche-seekers and high-end flyers serve fewer airports and therefore need not jockey for position as much with competitive actions. Moreover, that these airlines are less likely to cut prices and engage in tit-for-tat imitation may be due to their differentiation on first class and marketing, a key aspect of high-end flyers, and trip length, a key aspect of niche-seekers. In contrast, perhaps entrenched-dominants must constantly engage in competitive activity, copy rivals and cut prices because of the large number of airports they serve and/or their low cost position which promotes price cutting. These findings would also not be possible with inferential measures. Future research should employ fine-grained measures of rivalry, such as those used in this study, along with additional measures capturing more directly the magnitude, threat and radicality of actions and reactions.

An important question related to strategic groups and rivalry concerns the recent changes in the airline industry. According to *Air Transport World* (1995), only 13 of the airlines in the sample used in this research still remain in the industry as of early 1995. Many were acquired by other airlines and many others have gone bankrupt in what has been a very volatile industry. Although an examination of the reasons for exit is beyond the scope of this paper, a substantial degree of exit has occurred from *all* of the strategic groups. Specifically, four of the 11 entrenched dominant firms have exited (and two others have been reorganized following Chapter 11 proceedings), nine of the 13 high-end flyers no longer remain in the industry, and three of the five niche-seekers no longer exist. Future research could examine the relationship between these dynamic fine-grained measures of rivalry and financial distress.

In conclusion, this study advances our understanding of the strategic group rivalry question by utilizing more direct and dynamic measures of interfirm rivalry. The study found that competitive responses to actions cannot be predicted by strategic group membership. Importantly, however, strategic group membership is a predictor of the manner by which firms compete with one another. These findings shed further light on the utility of the strategic group concept by suggesting that the most important question may not be the level of rivalry within and between groups, as previous literature has suggested, but in the manner in which different groups act competitively with regard to one another, or the way in which they might instigate warfare, cut prices and imitate. In this regard, fine-grained measures of rivalry have the potential to offer important insights.

ACKNOWLEDGEMENTS

The authors thank two anonymous reviewers for their helpful comments on earlier drafts of this manuscript.

REFERENCES

Air Transport World (June 1995). 'World Airline Report', pp. 118–136.

Barney, J. B. (1991). 'Firm resources and sustained competitive advantage', *Journal of Management*, **17**, pp. 99–120.

Baumol, W. J. (1982). 'Contestable markets: An uprising in the theory of industry structure', *American Economic Review*, **72**(1), pp. 1–15.

Caves, R. E. and M. Porter (1977). 'From entry barriers to mobility barriers: Conjectural decisions and contrived deterrence to new competition', *Quarterly Journal of Economics*, **91**, pp. 241–262.

Chen, M. J., K. G. Smith and C. M. Grimm (1992). 'Action characteristics as predictors of competitive responses', *Management Science*, **38**, pp. 439–455.

Cool, K. and I. Dierickx (1993). 'Rivalry, strategic groups and firm profitability', *Strategic Management Journal*, **14**(1), pp. 47–59.

Cool, K. O. and D. E. Schendel (1987). 'Strategic

group formation and performance: U.S. pharmaceutical industry', *Management Science*, **33**, pp. 1102–1124.

Galbraith, C. and D. Schendel (1983). 'An empirical analysis of strategy types', *Strategic Management Journal*, **4**(2), pp. 153–173.

Hatten, K. and M. Hatten (1987). 'Strategic groups, asymmetrical mobility barriers and contestability', *Strategic Management Journal*, **8**(4), pp. 329–342.

Kwoka Jr., J. E. and D. J. Ravenscraft (1986). 'Cooperation v. rivalry: Price–cost margins by line of business,' *Economica*, **53**, pp. 351–363.

McGee, J. and H. Thomas (1986). 'Strategic groups: Theory, research, and taxonomy', *Strategic Management Journal*, **7**(2), pp. 141–160.

Peteraf, M. A. (1993). 'Intraindustry structure and response toward rivals', *Managerial and Decision Economics*, **14**, pp. 519–528.

Porter, M. E. (1976). *Interbrand Choice, Strategy, and Bilateral Market Power*. Harvard University Press, Cambridge, MA.

Porter, M. E. (1979). 'The structure within industries and companies performance', *Review of Economics and Statistics*, **61**, pp. 214–227.

Porter, M. E. (1980). *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. Free Press, New York.

Scherer, F. M. and D. Ross (1990). *Industrial Market Structure and Economic Performance*. Houghton-Mifflin, Boston, MA.

Schumpeter, J. A. (1950). *Capitalism, Socialism, and Democracy* (3rd ed.). Harper, New York.

Smith, K. G., C. M. Grimm, M. J. Gannon and M. J. Chen (1991). 'Organizational information processing, competitive responses, and performance in the U.S. domestic airline industry', *Academy of Management Journal*, **34**, pp. 60–85.

Smith, K. G., J. P. Guthrie and M. J. Chen (1989). 'Strategy, size and performance', *Organization Studies*, **10**, pp. 63–89.