

RESOURCE AND MARKET BASED DETERMINANTS OF PERFORMANCE IN THE U.S. BANKING INDUSTRY

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This paper explores the implications of studying industry competitive patterns at the level of resource accumulation and the relationship between resource endowments and firm performance outcomes in the U.S. banking industry. It uses the strategic group framework to evaluate two models of rivalry and performance and concludes by discussing the implications of the findings for competitive analysis, strategic group theory and the banking industry.

Why are some firms consistently more profitable than others? Developing an understanding into the determinants of superior performance has fascinated strategy scholars since the beginnings of the field. Indeed, it is the fact of these persistent interfirm performance differences that was the origin of the strategy concept (Rumelt, Schendel, and Teece, 1991). Other important questions such as why firms differ, how they behave, how they choose strategies, and how they are managed, are subsumed by this one overarching question (Porter, 1991).

Early researchers working in the tradition of the Mason/Bain structure-conduct-performance (SCP) paradigm attributed differential firm performance to the structural nature of the industry. Beginning in the 1970s, strategy researchers started looking for answers within the industry and modified the SCP to advance the concept of strategic groups and mobility barriers to account for intraindustry heterogeneity and performance variation. This framework argues that stable, persistent firm profits derive from the economic structure within industries and that strategic group membership and its associated collective behavior is the primary source of durable differences in firm profitability

within industries (Caves and Porter, 1977; Porter, 1979). However, despite numerous empirical efforts to test the performance implications associated with group membership,¹ no conclusive evidence exists for the hypothesized group-performance linkage.

Recently, strategic management has developed the theory of resource-based view (RBV) of the firm. According to the resource-based theorists (Penrose, 1959; Wernerfelt, 1984; Peteraf, 1993), bundles of resources, rather than the product market combinations chosen for their deployment, lie at the heart of a firm's competitive advantage. This approach calls for viewing the firm not through its activities in the product market but as a unique bundle of tangible and intangible resources. RBV shifts attention away from product-market barriers to competition, and towards factor-market impediments to resource flows. To the extent that the new competition is resource based, RBV suggests a complementary way of identifying strategic groups and in turn of investigating the causality of persistent interfirm performance differences within an industry.

This paper empirically tests a resource-based model of strategic groups and finds that this model has a greater ability to soak intraindustry perform-

Key words: strategic groups; resource-based view; competition; performance; banking

¹ For comprehensive review see McGee and Thomas (1986) and Thomas and Venkatraman (1988).

ance heterogeneity than the conventional market-based model. The findings validate the predictions of the RBV theory and shed some new light on the strategic group-performance linkage. I begin with a brief review of the theoretical roots of the two models, and then empirically test them in the U.S. banking industry. The study concludes by issuing a call for developing a more qualified and integrated view of strategic groups.

THEORETICAL BACKGROUND

Market-based view of strategic groups

The importance of diversity among the demand and cost curves of firms within the same industry was first discussed in detail by Chamberlain (1932). This was a precursor to the concept of 'strategic groups', which was first observed by Hunt (1972), and then developed in a series of papers by Caves and Porter (1977, 1978) and Porter (1979) to explain observed intraindustry differences in profit performance.

Strategic groups were loosely defined as clusters of firms which competed by following similar strategies within an industry (Porter, 1979). They are persistent structural features of industries and are bounded by mobility barriers—structural or strategic barriers which surround a group and protect it from entry by potential rivals (Caves and Porter, 1977). The presence of strategic groups within an industry is expected to affect industry and firm performance through the process of competitive rivalry between groups, and due to the presence of asymmetrical mobility barriers between groups. Groups which are protected by higher barriers and relatively insulated from the process of competitive rivalry within the industry are expected to enjoy superior performance (Porter, 1979).

In essence, then, the appeal of the strategic groups—mobility barriers paradigm stemmed largely from its ability to account for persistent intraindustry performance variation. In fact, Porter (1979: 220) went so far as to argue that 'the concept of strategic groups allows us to systematically integrate the differences in the skills and resources of an industry's member firms and their consequent strategic choices into a theory of profit determination'.

Empirical researchers who tested this proposition came up with mixed findings. Porter (1979)

failed to establish statistically significant differences between his 'leader' and 'follower' strategic groups. Oster (1982), on the other hand, found that high advertisers outperformed low advertisers in those industries where advertising spending has lasting effects. Again, while Howell and Frazier (1983) found no difference in performance across strategic groups in the medical supply and equipment industry, Dess and Davis (1984) did find differences on some performance measures in the paint and allied products industry. More recently, Cool and Schendel (1987) found differences of market share, but not profitability across groups in the pharmaceutical industry. In the insurance industry, Fiegenbaum and Thomas (1990) found significant differences over time across groups on five out of nine performance measures, while Lewis and Thomas (1990) found no support whatsoever for differential performance effects in the U.K. retail grocery industry.

The inconclusive empirical evidence on this issue means that either no such linkage exists or that the relationship has not been captured due to under/poor specification of the model. Taking the specification issue as paramount, I use the RBV theory to develop an alternative set of group defining variables.

The resource-based view and strategic groups

The pattern, nature and intensity of competition in most industries has changed considerably since the original discovery of strategic groups. Under the new realities of global competition, traditional strategic recipes no longer hold. Successful competitors build their strategies not around products, but around deep knowledge of a few highly developed core skills (Prahalad and Hamel, 1990). A seemingly superior product rarely provides a sustainable competitive advantage, since it is easily bypassed, reverse engineered, cloned, or slightly surpassed (Quinn, Doorley, and Paquette, 1990).

The underlying competitive advantage, instead, is provided by distinctive firm-level resources² such as innovative marketing and dis-

² Following Caves (1980) and Wernerfelt (1984) the term resources is used here in a broad sense to refer to immobile and 'sticky' rent generating factors of production. For a discussion of the analytical distinction between resources and capabilities see Grant (1991).

tribution methods, advanced process technologies, logistics capabilities, appropriate organizational structures, and administrative procedures etc., which competitors cannot reproduce. These resources are accumulated over a period of time with a deliberate strategic focus. They are the product of a history of strategic choices and resource commitments made by the firm (Dierickx and Cool, 1989).

Thus, it may be inferred that systematic differences exist between firms as a result of 'strategic' resource choices, i.e., decisions to invest in building resource bundles which are often difficult and costly to imitate. These resource bundles are the building blocks of successful product market strategies. Furthermore, because firms are most comfortable acting in the 'neighborhood' of what they already know best (Cyert and March, 1963), these resource bundles also circumscribe the competitive flexibility of firms in terms of their ability to change strategic postures. Hence, given that resources constrain the effectiveness of current strategic actions, it can be argued that the 'stock' of accumulated resources and/or competencies constitutes the real source of competitive advantage.

While superior performing product market actions are transparent to every player in the industry, what is not so readily apparent is the resource base required to successfully implement those strategies. Even if such insights are obtainable, considerable time lag is required to acquire and cultivate the desired resource mix. Apparently, then, with increasing global competition, the underlying competitive emphasis in most industries appears to have shifted from being position based to being more resource based (Best, 1990). Effective competition may not occur at the level of observed product market strategies (which merely reflect transient competitive positioning), but at the level of acquisition/creation of suitable resource bundles. Hence, any viable study of rivalry within an industry should concentrate on isolating the underlying competitive resources employed by firms. For instance, McGee and Thomas (1989: 105) argue that "To discuss pricing (for example) on its own is less useful than examining how *distinctive firm-level characteristics (which are embodied in different asset structures)* influence competitive forces" (emphasis added).

If strategic groups are derived based solely on observed product market strategies, they might not

fully capture this underlying competitive reality.³ The phenomenon which makes competitive positions stable and defensible is encompassed in the uncertain imitability of the underlying resource base. It is this resource base, and not market positions, which constitutes effective mobility barriers. In sum, according to the RBV, firm resource endowments rather than product market circumstances define success, and since the strategic group framework was originally developed to explain the locus of firm profitability, RBV suggests a modification of strategic group definition and operationalization.

Strategic groups, therefore, may be defined as groups of firms which compete within an industry by deploying similar configurations of strategic resource bundles. While researchers such as McGee and Thomas (1986) have acknowledged that firm resource endowments provide a basis for identifying strategic groups, the question does arise as to how firm-level factors translate to group-level aggregation? The concept of strategic industry resources developed by Amit and Schoemaker (1993) provides an answer to this quandary. According to them, firm rent generating resources are of two types: (1) resources which are considered valuable in the industry—the so-called strategic industry factors; and (2) firm idiosyncratic resources. Of course, all unique firm-level resources are not necessarily valuable. Thus, firms which employ similar configurations of the strategic industry resources can constitute a strategic group.

Any derivation of strategic groups based on firm resources is expected to be more stable than the strategic groups based on firm product market strategy, because in general, altering a firm's resource base requires a considerably longer time than changing its market strategies (Dierickx and Cool, 1989). Further, since the stability of groupings is a prerequisite to the presence of performance differences between groups (Cool and Schendel, 1987), it is also expected that durable performance consequences will be associated with these resource-based groups.

³ This argument is based on the assumption that there is no one-to-one correspondence between resource bundles and product market strategies. In other words, firms with similar resources may not necessarily follow similar market strategies and the apparently common market strategies of firms may be based on a different set of underlying resource bundles. Thus, resource groupings may be different from market groupings.

I test the above proposition by posing the following research question:

How do resource-based strategic groups compare with market-based groupings in their ability to account for intraindustry performance variation?

This research question seeks to examine whether it is possible to capture competition at the resource level by mapping strategic groups? Further, if the analysis produces meaningful groups, then do these groups have better predictive validity in terms of differential performance effects than groups based on product market strategies? It is important, however, to note that since the firm seeks for a joint effect of resources plus market position in establishing competitive advantage, a resource view without positioning may be as misleading as a market-based view without resource content. Essentially, then, these two models complement each other and there are a number of linkages between them. I expand on this point in the 'Discussion' section of the paper.

METHODOLOGY

The setting for this study is the U.S. banking industry. Two considerations influenced the choice of the banking industry for this study. First, due to some fundamental structural changes, the competitive emphasis in this industry appears to have shifted from being largely market based to being more resource based (*Wall Street Journal*, 1991). Therefore, this industry provides a fertile ground for empirical testing of my research question. Second, this researcher's own keen interest and working knowledge of the industry. An understanding of the industry is prerequisite for performing its strategic group analysis (Cool and Schendel, 1987).

Industry context

The basic function of a banking firm is financial intermediation, and its core product is making loans and accepting deposits. The banking industry has undergone tremendous changes in recent years, brought about by the forces of deregulation, technological developments, and globalization. These changes have provided much greater opportunities

to a significant increase in the degree of competition in this previously regulated and largely uniform industry. In essence the economics of the industry have changed from being 'supply driven' to being 'demand led.'

Along with the increase in the intensity of competition, there has been a concomitant shift in the nature or the bases of competition. While previously competition focused on preemptive entry into key geographical and product markets to establish advantage, now it focuses more on developing key organizational resources and capabilities such as innovation, efficient production process, strong credit culture, etc. This shift in competitive emphasis has occurred, because the regulatory protection and other collective imperfections which previously provided sustainable advantage in this industry are slowly fading away. Consequently, market participants increasingly deem the accumulation and development of valuable resources to be the most durable source of competitive advantage in the banking industry.

The methods employed to operationalize the two models are discussed next. To enhance operational clarity they are presented separately.

(a) Resource-based strategic groups

Operationalization of firm resources and their statistical analysis in a large sample framework is indeed a knotty problem in strategic management research (Collis, 1991). To overcome this problem, a panel consisting of industry experts was employed to identify key resources and collect data on firm-level endowments on these resources in the banking industry. A panel consisting of industry analysts was formulated. Industry analysts have been recognized to be the best and most authoritative sources for industry information (Brown and Rozeff, 1983).

Composition of the expert panel

Three criteria were established to pick bank analysts for the panel of industry experts:

1. Each individual should have at least 10 years of industry experience.
2. He/she should be frequently quoted and interviewed in the *Wall Street Journal* and the business and trade press.

3. They should be working for a major Wall Street investment bank.

Following these criteria, an 11-person panel was constituted. Table 1 lists the names and affiliations of panel members at the time of data collection. This panel cumulatively embodies over 200 years of industry experience.

Resource measures

The data collection process began in the summer of 1991 with an initial round of interviews with Hanley, Bryan, Aspinwall and Dempsey. At these preliminary interviews discussions focused on understanding the key drivers of competition in the banking industry. Ingo Walter (1986), who is an acknowledged authority on the banking industry, has identified a set of eight key capabilities/skills which provide competitive advantage in the financial services industry. This list was utilized to provide a framework for these discussions. Based on the input from these experts, the initial list of eight was expanded and recast into 10 key resources which provide sustainable competitive advantage in the banking industry. These are: (1) Management Quality and Depth, (2) Franchise, (3) Asset/Credit Quality, (4) Technological Expertise, (5) Placing Power, (6) Adequacy of Capital Base,

(7) Resource Management/Efficiency, (8) Innovation, (9) Risk Management, and (10) Information Asymmetries. The Appendix provides a description of each of these resources. This write-up was used during the subsequent interviewing process to ensure a common frame of reference.

Another issue which came up for discussion at these initial interviews was the nature and design of the instrument for measuring resources. Use of various methods was discussed including the usage of questionnaires with industry-grounded anchors which would describe what a value of low or high on a particular resource meant. But it was suggested that this was not feasible (for instance, it is very difficult to operationalize placing power from high to low), and unnecessary, since these people were experts. Consequently, single rating sheets were developed which measured each of the 10 resources on a seven-point Likert scale ranging from low to high.

In the next stage, each of the panel members was personally contacted for semistructured interviews. These discussions began by a general discussion of competitive dynamics in the industry. This served as an icebreaker and a credibility builder. Then an overview of the entire study was presented to them, and finally, the importance and relevance of each of the 10 resources were discussed to establish a common frame of reference. After the

Table 1. Expert panel

Thomas Hanley ^a	Managing Director, Soloman Brothers
Jim McDermott	President and Director of Research, Keefe Bruyette & Woods
Judah Kraushaar	First VP, Merrill Lynch
Charles Peabody ^b	Sr. VP Research, Kidder Peabody
Ted Paluszek	VP Research, Kidder Peabody
Sally P. Davis	VP Investment Research, Goldman Sachs
Tom McCandless	VP Investment Research, Goldman Sachs
Dick Goleniewski	VP Investment Research, Goldman Sachs
Michael Plodwick	VP Research, C.J. Lawrence Inc.
James Hansbury	VP Research, Wertheim Schroder & Co.
Frank Suoozo	Managing Director, S.G. Warburg
Ray Soifer	Manager, Brown Brothers Harriman

In addition, the following people contributed actively towards developing and refining the capabilities measure:

Lowell Bryan	Managing Director and Chief Banking Consultant, McKinsey & Co.
Dick Aspinwall	Chief Economist, Chase Manhattan
Joe Dempsey	VP Manufacturers Hanover
Steve Rhoades	Chief, Financial Structure Div., Federal Reserve, Washington

^aHas since moved to First Boston Corporation.

^bHas left Kidder Peabody and set up his own consulting business.

panelists understood the study, they were asked to rate the banks that they personally followed on each of the 10 resources. One rating sheet was used for each bank and these rating sheets along with a written description of the 10 key resources were left with the panel members to be scored at their convenience and returned to this researcher.

To avoid potential referent bias, the panelists were asked to rate each bank with respect to the industry as a whole and not with reference to the group that they followed.⁴ While a certain degree of contamination by the 'halo effect' (superior performers being rated high on everything) is unavoidable, all references to performance were scrupulously avoided during the interviews and in the written description of capabilities. This strategy did seem to work, as some poor performing banks (Marine Midland, Republic NY) were rated highly, indicating their long-term value, while current high performers (e.g., Boatmen's Bancshares) were rated poorly, indicating their poor strategic health.

An analysis of rating sheets showed a high degree (0.88) of interrater agreement. As an additional reliability check, summated panel ratings for seven randomly selected banks on items such as asset quality, capital adequacy, and management quality were crosschecked with write-ups in the business press and annual reports. In each and every case, near perfect correspondence was observed between different sources.

Sample

It is important to note that most analysts personally follow only 15–20 banks on an average and most premier investment banks generally track the top 25–30 banks. This places a limitation on the sample for which data could be collected from the expert panel. But it does increase the reliability and validity of the measures, because due to the highly focused and intensive nature of their coverage, the analysts know these firms 'inside-out.'

I decided to get a minimum of three ratings for each bank. In some large firms like Goldman Sachs and Kidder Peabody, coverage of the industry is divided among two or three different analysts who each follow a subgroup of the banks (ranging from 15 to 25) that the firm tracks. In these firms each analyst only rated the banks that they personally

followed, thereby further improving the quality of the data. Following this procedure a final sample of 45 banks was assembled, each rated by at least three analysts. On about 30 banks, more than five different ratings were obtained. All of these banks fell within the top 60 ranked by asset size as of March 31, 1991.

(b) Marked-based strategic groups

Following Cool and Schendel (1987), I operationalized firm market strategies by examining their scope and resource deployments. Eleven variables representing these components were identified after a thorough literature search and discussion with industry analysts. These are briefly discussed below.

Strategic scope variables

Scope commitments in the U.S. banking industry can be measured by product scope, geographic scope and product diversity.

(1) *Product scope (CI, REC, REM, and TIM)*. This is captured by four variables: the ratio of commercial and industrial loans/total loans (CI), the ratio of commercial real estate loans/total loans (REC), the ratio of residential real estate mortgages/total loans (REM), and the ratio of time deposits/total deposits (TIM). CI and REC are negatively correlated with consumer lending and represent the degree of involvement of the bank in the wholesale market as opposed to the retail market. REM on the other hand captures the dependence of the firm on the specialized real estate market segment. TIM captures the fixedness/time horizon of the banks' liability/funding base.

(2) *Geographical reach (FND)*. This variable investigates firms' international reach by looking at the ratio of foreign-owned deposits to the total deposit base. This variable is positively correlated with loans to foreign governments and interest rate swaps.

(3) *Product diversity (NIR)*. The percentage of noninterest revenues/total revenues is employed as a broad reflection of product diversity in the banks' strategy. This variable is a proxy for fee-based activities and in effect shows the extent of nontraditional banking operations employed to generate revenues.

⁴ I am indebted to Professor Charles Fombrun for pointing this out to me.

Operations and finance are two key functional areas from which competitive advantage may particularly accrue to a banking organization. Indeed, the degree of leverage, loan loss reserve, funding strategies, and investment decisions indicates differences in strategic financial mix. Five measures of resource flows were developed in order to reflect these bases for differentiation in the banking industry.

(1) *Funding (NPF)*. This is the ratio of net purchased funds to total assets. This ratio is negatively correlated with core deposits and liquidity and shows the degree to which the bank relies on purchasing funds in the open market rather than depending on its deposit base to fund its assets. In effect the higher this ratio is, the more aggressive the bank in its outlook and the more willing it is to make use of opportunities in the market place as they arise.

(2) *Capitalization (LEV)*. This ratio captures the degree of financial leverage or the riskiness of the banks' strategy. It is operationalized as the ratio of risk-weighted equity capital net of goodwill to total assets.

(3) *Investments (GRA)*. For a bank, the investment decisions basically consist of finding ways to increase its asset base. The U.S. banking industry has seen a spate of intrastate and intraregional mergers and acquisitions since deregulation in the early 1980s. This activity is captured by looking at the 5-year annual average asset growth rate.

(4) *Provisions (PROV)*. This is the percentage of loan lease loss reserve/average loans and leases. It reflects the efficiency and effectiveness of a bank's production process in recognizing problem loans, and making adequate provisions against those losses.

(5) *Loan ratio (PR2)*. A portion of a bank's earn-

⁵ It is important to note these variables capture the current 'flows' of resources to different functional areas, while variables in the resource-based model capture the accumulated 'stock' and endowment of critical resources. Hence, these two sets of variables are measuring two very different phenomena. Readers are referred to Dierickx and Cool (1989) for a discussion of the differences between asset stocks and flows.

ings are derived from nonbanking assets such as securities and real estate. This variable captures the production mix of a bank's earning assets by examining the percentage of loans in its asset base.

Data sources

The sample consisted of the same 45 bank holding companies on which resource data was available. Data on positioning strategies was obtained directly from 1990 annual reports and 10k statements. However, performance data which was averaged for 3 years—1989, 1990, and 1991—to smooth out the effects of short-term trends was obtained from both annual reports and the Value Line investor's survey. For the firms which merged in 1991, such as the Chemical Bank and Manufacturer's Hanover Bank, performance data was averaged for 2 years preceding the merger.

(c) Performance variables

Three variables were used to measure performance along each of the dimensions of strategic performance: profitability, productivity, and the ability to raise long-term resources, recommended by Chakravarty (1986). While multiple measures of performance have been used in some of the recent strategic groups studies (Cool and Schendel, 1987; Fiegenbaum and Thomas, 1990; Lewis and Thomas, 1990) measurement of strategic as opposed to economic performance is a novelty in this research stream. Measures used are as follows.

(1) *ROAA*. This is the standard return on average asset measure frequently employed to evaluate bank performance. This measures the profitability aspect of strategic performance.

(2) *Employee productivity (PPE)*. For a service organization like a bank, human resources are its biggest asset, and therefore productivity per employee is an important performance criteria. This is operationalized by dividing the net profit by the number of employees. This then measures the productivity aspect of strategic performance.

(3) *Relative P/E ratio*. Price earnings multiple is a market-based measure of performance and reflects the price multiple/premium which the financial markets are willing to pay over firms' current earnings. Individual P/E ratios were adjusted

relative to the industry to reduce the effect of extraneous variance. This then reflects the third dimension of strategic performance, namely the ability to raise long-term resources.

Analysis

Data on firm resources and scope and resource deployment strategies were cluster analyzed to identify two separate sets of strategic groups. Previous research has generally used Ward's minimum variance method for clustering firms into strategic groups. This method, however, is biased towards generating equal-sized clusters and is subject to the centroid drift problem (Punj and Stewart, 1983). To overcome these problems, a two-stage clustering algorithm, where Ward's hierarchical agglomerative clustering is used in the first stage to generate seed values and the approximate number of clusters for iterative partitioning in the second stage, was employed.

Since tests of performance effects are totally dependent on correct identification of the strategic groups, great care was exercised to accurately identify groups. Multiple methods were employed to arrive at the number of strategic groups/clusters. The first method employed was the cluster stopping rule recommended by the SAS Manual and Fiegenbaum and Thomas (1990), i.e.:

1. clusters explain at least 65 percent of the overall variance; and
2. an additional cluster adds less than 5 percent to the incremental variance explained.

These results were corroborated by looking for breaks in the agglomeration schedule of hierarchical clustering routine and inspecting the scree plots (Everitt, 1980). Then the procedure was reversed by running a discriminant analysis to verify the classification rates of the identified groups. To enhance the robustness of these results, jack-knifing procedures using a reduced set of variables and holdout sampling were employed. The results remained the same.

Finally, a MANOVA was run on identified clusters to see whether the clusters really differed on underlying dimensions. An ANOVA was then performed on every strategy variable to establish on what competitive dimensions the identified strategic groups really differed. The group mean and standard deviations shown in Tables 2 and 3 were

employed to develop a profile of each cluster. Tables 4 and 5 present the strategic group maps generated from this analysis.

RESULTS

Resource-based strategic groups

A five-cluster solution was obtained, which looked very different from the market-based clusters (see Tables 2 and 4). Resource groupings display a more stratified form of competition. Although the firms were grouped on resource endowments, size does not seem to be an important competitive factor. An inspection of cluster centroids revealed that Group 2 is the most well-endowed group while Group 5 is the least endowed. The rest of the three groups fall between these two extreme groups with Group 1 being closer to Group 5, while Groups 3 and 4 are more proximate to Group 2. In terms of aggregate performance, Group 2 has the highest productivity ratio at 19,489 and second highest ROAA at 0.80, Group 3 has a productivity of 14,362 and ROAA of 0.82, Groups 4 and 1 have productivity ratios of 9358 and 5040 and ROAA of 0.44 and 0.28 respectively. Both of these numbers are negative for Group 5. The relative p/e ratios also follow the pattern of the other two performance measures.

Juxtaposing these group performance profiles with their resource endowments allows one to make some pretty interesting observations. For instance, while all groups have strong franchises⁶ (above industry average), they don't have uniform capabilities to exploit those franchises. Again, although Group 4 has the highest placing power and strong technological expertise and innovation capability, it is not able to exploit/convert them into a significant competitive advantage (as assessed by superior performance). Perhaps its weak risk management capability, coupled with its relative inefficiency and a moderate capital base, prevent it from fully deploying its capabilities in other areas. This suggests that there may be a gap between the possession and utilization of certain resources.

Group 3 outperforms Group 4, but a comparison of the two reveals that they are quite similar in their resource configurations, with Group 4 scoring

⁶ Please see the Appendix for a description of this and other resources.

Table 2. Resource-based strategic groups: MANOVA and ANOVA test results; cluster centroids and standard deviations

Variable	MANOVA; F (Wilks) = 6.17 ($p = 0.000$)					F (ANOVA)			
	SGI ($n = 13$)	SGII ($n = 13$)	SGIII ($n = 7$)	SGIV ($n = 7$)	SGV ($n = 5$)				
MQD	3.91 (0.323)	5.92 (0.615)	5.20 (0.624)	4.86 (0.468)	4.72 (0.430)	46.4 (0.000)			
FRAN	4.44 (0.538)	5.81 (0.444)	5.32 (0.550)	5.20 (0.773)	4.71 (0.607)	10.4 (0.000)			
AQ	3.34 (0.488)	5.84 (0.759)	4.83 (0.486)	3.48 (0.600)	2.04 (0.402)	52.9 (0.000)			
TE	3.85 (0.477)	5.56 (0.778)	4.32 (0.468)	5.12 (0.674)	3.28 (0.311)	20.9 (0.000)			
PP	4.08 (0.727)	4.99 (0.836)	4.16 (0.167)	5.00 (0.408)	3.19 (0.572)	9.36 (0.000)			
CAPB	3.81 (0.575)	6.08 (0.673)	4.75 (0.588)	4.12 (1.01)	2.31 (0.775)	31.1 (0.000)			
EFF	3.96 (0.515)	5.67 (0.526)	5.16 (0.325)	4.36 (0.866)	3.55 (1.10)	17.1 (0.000)			
INOV	3.84 (0.402)	5.50 (0.754)	4.22 (0.279)	5.06 (0.502)	3.26 (0.611)	23.8 (0.000)			
RM	3.71 (0.433)	5.99 (0.552)	5.16 (0.317)	3.90 (0.456)	2.13 (0.533)	79.5 (0.000)			
IA	4.02 (0.220)	5.61 (0.421)	4.47 (0.293)	4.57 (0.485)	3.32 (0.238)	53.3 (0.000)			
Average									
MQD	FRAN	AQ	TE	PP	CAPB	EFF	INOV	RM	IA
4.72 (1.14)	5.12 (0.768)	4.17 (1.42)	4.55 (1.01)	4.40 (0.870)	4.49 (1.38)	4.66 (1.01)	4.50 (0.969)	4.45 (1.35)	4.56 (0.835)

higher on some and Group 3 on others. The key difference is between their risk management capability and asset quality. Indeed, risk management seems to be a core skill in this industry.

The meaningfulness of these groupings is hard to determine, given that they represent a fundamentally different way of conceptualizing industry competitive dynamics. Members of the expert panel found them to be very interesting and instructive. Their acceptance was certainly facilitated by the fact that industry analysts increasingly view the industry competition as being denominated in terms of organizational skills (*Wall Street Journal*, March 23, 1991). The best and perhaps the sole quantitative or statistical method of determining the validity of these groupings is to evaluate their ability to explain intraindustry performance variation.

Market-based strategic groups

A four-cluster solution was obtained (see Tables 3 and 5). Briefly, Group 1 is the *specialized*

regionals. A focal point of this group's strategy is its concentration in the residential real estate markets. The profile of firms in this group is very similar to conventional banks. They have a very high proportion of loans in their portfolio which are funded primarily by their time deposits. These firms are extremely well capitalized, and way below average in generating fee-based revenues. They hardly have any exposure to foreign markets, and being traditional banks it is not surprising that they have the lowest growth rate.

Group 2 is the *trust banking* group. It is characterized by a focus on specialized trust, custodial, securities and data processing, and trading business. This is essentially a niche strategy and the two firms in this group don't necessarily have similar strategies. This is apparent by looking at the high degree of variability within the group on foreign exposure, noninterest revenues, and purchase of funds. Nevertheless, this group is characterized by a high growth rate, heavy involvement in wholesale markets, and low loan ratios.

Group 3 is the *diversified regionals*. The largest

Table 3. Group means and standard deviations of market-based strategic groups

Variable	Spec. reg.	Trust	Div. reg.	Globals	Average
CI	33.73 (11.21)	63.06 (14.22)	41.26 (9.23)	23.88 (37.52)	37.52 (13.31)
REC	10.78 (6.72)	14.80 (15.84)	15.54 (7.30)	7.04 (4.46)	12.90 (7.64)
REM	22.95 (11.23)	9.82 (7.33)	13.86 (6.47)	10.22 (6.83)	15.41 (9.06)
TIM	69.19 (13.79)	18.09 (11.44)	52.51 (13.81)	29.59 (10.99)	51.44 (19.53)
FND	3.47 (7.08)	40.48 (12.62)	5.31 (8.46)	48.81 (14.40)	13.56 (19.71)
NIR	27.51 (6.41)	43.65 (30.19)	36.40 (9.81)	52.39 (12.53)	37.06 (13.02)
CS*	3.87 (0.55)	3.09 (2.23)	3.54 (0.60)	3.45 (0.94)	3.59 (0.74)
PROV*	1.15 (0.53)	1.06 (0.96)	1.91 (1.39)	1.55 (1.04)	1.62 (1.18)
NPF	6.78 (5.24)	18.25 (25.10)	10.30 (5.34)	15.99 (15.11)	10.69 (8.98)
LEV	6.40 (0.99)	5.46 (1.03)	6.11 (1.36)	4.77 (0.75)	5.93 (1.27)
GRA	2.71 (5.63)	14.00 (1.56)	8.06 (6.74)	8.01 (9.72)	6.96 (7.27)
PR2	80.29 (7.71)	34.75 (7.72)	68.15 (9.22)	63.45 (20.48)	68.94 (14.66)

Numbers in parentheses indicate standard deviations.

*Variables which were not statistically different across groups at the 5% level.

Table 4. Resource-based strategic group map of the U.S. banking industry

Group 1	Group 2	Group 3	Group 4	Group 5
Valley National	State Street	U.S. BanCorp.	Continental	Midlantic
Signet	Northern Trust	First Bank System	Mellon	Shawmut
Meridian	Society Corp.	KeyCorp.	Fleet/Norstar	MNC Financial
Boatmen's Bancshares	Corestates Financial	National City	PNC Financial	First Interstate
Barnett Bank	Wachovia	First Fidelity	NCNB	
Bank of Boston	NBD Bancorp	First Union	Security Pacific	
Bank of New York	Republic New York	Bank of America	CitiCorp.	
First Chicago	Banc One			
C&S Sovran	Norwest			
Manufacturers Hanover	Suntrust			
Chemical Bank	Wells Fargo			
Chase Manhattan	Bankers Trust			
	J.P. Morgan			

of all groups, it contains more than half the sample firms. These firms are broadly spread across different market segments and asset classes, but have primarily domestic orientation, relying largely on their deposit base to fund asset growth. They are fairly well capitalized and have average levels of loan ratios and growth rates.

Group 4: the *global multirisk* banks have a high degree of international exposure and are heavy purchasers of funds in the open markets. They are poorly capitalized, engage in a high proportion of nontraditional banking activities, and surprisingly have the lowest proportion of commercial and industrial loans in their portfolio. Thus, despite the

Table 5. Market-based strategic group map of the U.S. banking industry

Specialized regs.	Diversified regs.	Global	Trust banks
KeyCorp. Barnett	Shawmut Boatmen's Bancshares	Bank America Bank of New York	Republic New York State Street
U.S. BanCorp. Society Corp.	National City Northern Trust	Chase Manhattan CitiCorp	
First Interstate Wells Fargo	Continental Meridian	First Chicago Manufacturers Hanover	
Suntrust Corestates Financial	First Fidelity First Union	Banker's Trust J.P. Morgan	
First Bank System Norwest	Midlantic Wachovia Chemical Bank Bank of Boston PNC Financial Banc One Signet NCNB Fleet Norstar MNC Financial C&S Sovran Security Pacific Valley National Mellon NBD Bancorp		

Table 6. ANOVA: R^2 fit for individual performance measures

	ROAA	Sig.	PPE	Sig.	RPE	Sig.
(A) Market-based groups	0.172	(0.027)	0.097	(0.098)	0.061	(0.149)
(B) Resource groups	0.594	(0.000)	0.509	(0.000)	0.336	(0.000)

Numbers in parentheses show the significance of F -values.

popular perception, these banks have considerable involvement in consumer banking which provides them with a stable revenue source. Again, like the trust group, there is a high degree of dispersion among firms in this group on variables such as loan ratio, commercial loans, foreign deposits, etc., suggesting differences in strategic posture among individual firms.

Performance analysis

ANOVA tests were performed across strategic groups from both models to compute the R^2 figures for each performance dimension. Table 6 presents the results of this analysis. An inspection of this table shows that resource groups exhibit highly sig-

nificant differences across all the three performance dimensions. Specifically, they explain about 59 percent of the profitability variance, 51 percent of the productivity variance, and approximately 33 percent of the market variance (relative price earnings multiple) among the sample firms.

The market-based groups on the other hand are significant only across two of the three performance dimensions, and their ability to soak intraindustry performance variation is much lower than resource groups. Table 6 shows that they account for about 17 percent of the profitability variance and for about 10 percent of the productivity variance. While the profitability results are significant at the 5 percent confidence level, the productivity numbers are significant only at the 10 percent

level. The price earnings variance is nonsignificant across market-based groups. This might result from the fact that financial markets and analysts generally focus on individual firms rather than groups of firms.

DISCUSSION

This study used the strategic group framework to examine the determinants of firm performance in the U.S. banking industry. The study is the first of its kind and its findings, even though exploratory, have implications for both competitive analysis and the strategic group theory. The models employed exhibited a strong fit. However, while product market strategy and configurations of key strategic resources together explain a substantial percentage of intraindustry performance variation, a significant percentage is still left unexplained. This may be attributed to a combination of unique firm-level resources and competencies, random error and, especially in the case of banking, to the effect of regional economic conditions.

The results show a strong overall association between firm resource endowments and superior performance. These findings empirically validate the predications of the resource-based theory. An analysis of the configurations and performance profiles of the resource-based groups reveals that there is a gap between the possession of resources and their actual utilization. Further, it appears that certain resources confer a disproportionate degree of advantage, and some of them seem to work only in particular combinations. In effect, certain configurations of resources are superior to others. Thus, simply being endowed with or developing strategic resources is not enough. Effective deployment of these resources in suitable combinations is essential for realizing their full value in the marketplace.

The resource-based groups identified in this study are different and almost counterintuitive from the commonly perceived groupings of Money Centers, Super Regionals, Regionals, etc. in the banking industry. This raises two interesting implications for industry and competitive analysis in general, and our understanding of intraindustry heterogeneity in particular.

First, it appears that there may be two levels of competition in an industry: the primary level, where firms compete for key input resources; and

the secondary level, where they compete for customers. This implies that it is possible for a firm to have two different sets of competitors. For example, J. P. Morgan and Banc One compete at the primary level for a limited amount of banking talent, for capital, for technological expertise, etc. However, at the secondary level, Morgan probably competes more with CitiCorp. for asset growth, while Banc One competes with National City or Society Corp. for retail deposits and mortgage origination. Thus strategists need to shift their mental models of competition to include rivals in input markets who often are not their competitors in the output markets.

Second, with increasing resource symmetry, product market positions become more contestable. Similarity in resource positions makes it easier for firms to contest each others' positions in the output markets (Hatten and Hatten, 1987; Cool and Dierickx, 1993). Therefore, while firms may not be actual rivals in most market segments at a point in time, this does not preclude them from invading each others' markets in the future, given the fact that they are well endowed with strategic resources. Thus in terms of contestability theory (Baumol, Panzer, and Willig, 1982), they are potential competitors. Such a phenomenon is already observable in the banking industry as it continues its move towards nationwide banking.

In effect, therefore, firms following apparently dissimilar market strategies may have strategic interdependence in the input markets even though they exhibit no clear interdependence in the output markets. A firm therefore can analytically identify its potential rivals by mapping groups in input markets. However, expected strategic behavior can be better understood by capturing both resource capability and approach to the marketplace. This is discussed below.

Implications for strategic groups research

Common sense suggests that one must know one's enemy as well as oneself before developing strategy (Sun Tzu, 1981) and, therefore, the subject of strategic groups is potentially interesting. What makes the existence of groups interesting is that members are really engaged in a repeated game, competing with themselves to gain customers by offering the most favored terms. A strategic group thus is a collection of existing and potential rivals who recognize that they are in the same game.

Despite the inherent attractiveness of the strategic groups concept, it has never fulfilled its promise and continues to be flagged as a useful area for theoretical and empirical development (Saloner, 1991). A key issue concerns the definition and the performance consequences of strategic groups. While researchers such as Cool and Schendel (1988), McGee and Thomas (1986), and Mehra (1994) have alluded to defining strategic groups based on firm asset structures, the difficulty of operationalizing firm resource endowments has impeded the testing of this proposition.

This study took a first step in that direction. The results suggest that incorrect or inadequate operationalization of strategic groups may have produced the inconsistent findings of existing research. It is important to note, however, that resources and market strategies are two sides of the same coin (Wernerfelt, 1984). Hence, the resource-based view of the firm doesn't supplant but merely complements the conventional economic view of market structures in adding to our understanding of the strategic groups phenomenon. Resources have value only when they are deployed in particular markets. Deployments constitute reinvestment in competencies and may actually increase resource value. As firms make investments in distinctive assets or deploy resources either to differentiate themselves or stake out a new position in the industry strategic space, they commit themselves to a particular arena. Continued commitment to a particular product market arena requires an ongoing flow of directed resource deployments, which leads to further fine tuning and honing of these strategy-specific resources. Therefore asset structures ought to be combined with market strategies for a rigorous operationalization of strategic groups.

Further, resource groupings represent competition in factor or input markets, while market groupings represent competition in output markets. Factor markets determine product market outcomes and hence firm performance. Since firms strategically interact in both markets, the definition of strategic groups should be broadened to reflect this phenomenon and fully capture the meaningfulness of the strategic groups construct. In sum, the underlying dynamic between market and resource strategies calls for broadening the definition and operationalization of strategic groups to include both product market positioning strategies and resource configurations supporting those strategies.

It would be very fruitful for future research to build a predictive model of rivalry based on the interaction and/or combination of resource- and market-based groups. For instance, five resource-based groups and four market-based groups provide 20 possible linkages. Some of these linkages are more likely and appropriate than others. For example, the firms in the global group should strive to develop the resource configurations, especially the risk management capability, of Groups 2 and 3. Similarly, firms in resource Group 2 can perhaps better leverage their resource base by entering the global group rather than the trust group. The expert panel can be used to assess the significance of the most important/frequent links. This subjective analysis can then provide a basis for a statistical assessment of performance differences.

Implications for the banking industry

The primary import of this study for bankers is the need to shift their strategic focus from privileged product market positions as basis for competitive advantage to the underlying resource base supporting those positions. Developing, nurturing, and sustaining key resources will enhance their long-term competitive health. A list of 10 such resources is identified in this study. This shift in focus also calls for supplementing their existing mental models of competition to include competitors in the primary market for resource accumulation, who are often not their competitors in product markets.

Another important implication is that risk management is a core skill in the banking industry. Simply investing in state-of-art technological systems and financial engineering departments/products will not be effective unless management has the depth and the vision to properly deploy these resources. Along with good management, asset quality and a strong capital base are also important for creation of a sustainable competitive advantage.

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APPENDIX: Description of Key Resources in the Banking Industry

1. *Management Quality and Depth (MQD)*: The quality and depth of a bank's management team is the most critical resource in establishing a sustainable competitive advantage. In some senses, it is the most generic of all skills from which the others flow. The quality of leadership, clear strategic vision, management development, ability to attract and retain high-quality people, compensation and reward systems, and prevalence of a credit culture, determine the quality and depth of management.
2. *Franchise (Fran)*: According to Walter (1986: 38) 'an institution's franchise is its most intangible asset, yet one that clearly distinguishes *ex post* the most successful competitors . . . from the rest.' Strategic management research is also paying increasing attention to corporate reputations as a source of competitive advantage. A bank's franchise is generally linked to a specific type of competence and expertise, developed over time and valued by the market.
3. *Asset/Credit Quality (AQ)*: Banks fund their assets (primarily loans) by their deposit base and by purchasing funds in the open market. In the deregulated banking environment, firms are increasingly forced to bid for funds. The perceived quality of the firm's asset base reflects the riskiness of its loan portfolio and is a determinant of its funding cost. This is particularly evident in the interbank market where institutions with lesser perceived quality or riskier asset structures are forced to pay a premium over other firms in order to fund themselves. This premium also signals an impaired credit rating to the banks' clients, further damaging its competitive position. The perceived quality of

institutional asset base thus conveys substantial advantages on the funding side and sends strong signals to the corporate clients.

4. *Technological Expertise (TE)*: Technological systems and capabilities provide tremendous advantage in the banking industry. Since banking is a highly knowledge-intensive industry, the ability of the bank's technological systems to sift through large amounts of data and provide quality information on a real-time basis is a valuable asset in the banking industry. Technology is both process and product related. Provision of decision support systems and 'back office' processing systems represent the process aspect of technology in the banking industry, while financial engineering products such as corporate financial services, swaps etc. which generate fee-based income for the bank represent product related financial technologies.
5. *Placing Power (PP)*: This represents the distribution capabilities and 'muscle' of a bank. With the continued securitization in the financial markets, placing power is becoming an increasingly important competitive variable in the banking industry. Placing power is very important for the investment banking arm of the banks in helping it to sell loans and arrange syndication.
6. *Adequacy of the Capital Base (CAPB)*²: A strong capital base confers a significant competitive power in the banking industry. It is the principal determinant of an institution's risk-bearing ability and enables successful players to fully exploit market opportunities by engaging in mergers and acquisitions. Further, it facilitates introduction of specific products to the international markets and the provision of value-added services to the clients. And finally, while it helps in achieving regulatory compliance, it also reduces the cost of funding.
7. *Resource Management/Efficiency (EFF)*: This represents the ability of a bank to judiciously manage its physical and human resources so as to lower its fixed cost base, while obtaining high-quality service from its human resources. Modern relationship-based banking is essentially a 'people business' and human resources

² It is worth noting that there is a key difference between this variable and the 'leverage' variable used in the market model. While leverage measures riskiness of a firm's strategy, this variable measures financial capacity and the ability to raise capital to make acquisitions.

are the single most critical competitive resource for service organizations. Consequently their effective management is very important.

8. **Innovation (INOV):** In the banking industry innovation can be looked upon as the introduction of a new process or technique that provides durable returns and adds significant value to the client. Due to the absence of any patent or copyright protection, the imitation lag for financial innovations tends to be relatively short. Consequently, 'it is important for an institution to maintain a continuous stream of innovations—in this sense, an institution's most important innovation is its *next* one' (Walter 1986: 37). While innovative capabilities are a function of the quality of human capital and technological expertise, they are also sensitive to organizational culture, management, reward systems, horizontal communication and cross-functional information exchange.

9. **Risk Management (RM):** This represents the ability of a bank to prudently manage and

evaluate its portfolio risk composed of credit risk, interest rate risk, default risk, exchange rate risk, along with its operating risk on an ongoing basis.

10. **Information Asymmetries (IA):** Banking in particular, and financial services in general, is a highly information-intensive business. All forms of lending, development of client-specific services and other credit-related activities are critically dependent on the collection, processing and evaluation of large amounts of information. Information is unique in that it is the only resource which can be used simultaneously in the production of a large number of services. In fact in 1984, Walter Wriston, former CEO of Citicorp, redefined Citicorp's business from banking to that of processing and selling information. Walter (1986: 32) notes: 'Indeed asymmetries of information among various competitors and their clients contribute a great deal toward explaining differentials in competitive performance.'