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Testimony by

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before the

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I am pleased to appear before this Committee on behalf of the Federal Reserve Board to discuss issues related to mergers among U.S. banking organizations. The last ten years have seen considerable consolidation of our banking system, a process that probably will continue for some time. And while banking consolidation is in many ways a natural response to the evolution of the overall banking environment, the significant changes we have observed do raise a number of public policy questions and concerns. In the Board's view, the primary objectives of public policy in this area should be to help manage the evolution of the banking industry in ways that preserve the benefits of competition for the consumers of banking services, and to ensure a safe, sound, and profitable banking system. My statement today will focus on how, within the context of existing law, the Federal Reserve is pursuing these goals, and will review the potential economic effects of bank mergers.

#### Merger Trends in the 1980s

It is useful to begin a discussion of the public policy and other implications of bank mergers with a brief description of recent bank consolidation trends. The statistical tables in Appendix A of my statement provide some detail that may be of interest to the Committee.

From a variety of perspectives the pace of bank mergers has accelerated over the last decade. For example, excluding acquisitions of failed or failing banks by healthy banks, in 1980 there were 188 bank mergers involving some nine billion dollars in acquired assets; by 1987 the annual number and dollar value of mergers peaked for the decade at 710 mergers and \$131 billion of acquired assets. In 1989, the number of mergers dropped back to an estimated 550 involving an

estimated \$60 billion of bank assets acquired. The number of mergers involving large bank holding companies also increased. In 1980 there were no mergers or acquisitions of commercial banking organizations where both parties had over one billion dollars in total deposits. The years 1985 through 1990 averaged 13 such transactions per year. Another perspective is provided by the fact that the total number of U.S. banking organizations declined steadily throughout the 1980s. In 1980 there were 12,679 banking organizations (including 14,737 banks), by 1985 11,377, and in 1990 some 9,688 (including 12,526 banks), a 24 percent decline in organizations and a 15 percent decline in numbers of banks from 1980. These trends have been accompanied by an increase in the share of total banking assets controlled by the largest banking organizations. For example, the proportion of domestic banking assets accounted for by the 100 largest banking organizations went from 48 percent in 1980, to 55 percent in 1985, to 62 percent at year-end 1990.

The trends I have just described must be placed in proper perspective, because taken by themselves they hide some of the key dynamics of the banking industry. For example, while a major reason for the decline in the number of banking organizations over the 1980s was the fact that almost 1,100 banks failed, the decline in the total number of banks was offset considerably by the fact that over that decade some 2,700 new banks were formed. Similarly, while during the 1980s over 6,600 bank branches were closed, the same period saw the opening of well over 16,000 new branches. Perhaps even more significant, the total number of banking offices increased sharply, from about 48,500 in 1980 to almost 60,000 in 1990, a 23 percent rise.

Data on the nationwide concentration of U.S. banking assets must also be viewed in perspective. None of the increase in such

concentration among the 100 largest banking organizations has occurred among the very largest--the ten largest--banks. Rather, the large regional banks have accounted for all of the increase in the concentration ratio. Of course, if the recently announced mergers of some of our largest banks are implemented, concentration among the top ten will increase.

Given the Board's statutory responsibility to ensure competitive banking markets, it is critical to understand that these nationwide concentration statistics are not the important concept for assessing competitive effects. Virtually all observers agree that the relevant issue is competition in local banking markets. And the facts are that, over the last decade, the average proportion of bank deposits accounted for by the three largest firms in urban markets has increased by only one percentage point, and has remained virtually unchanged in rural markets. These ratios have actually declined in both types of markets since the mid-1970s. The apparent contradiction between increased concentration ratios nationally and virtually unchanged ratios locally can be explained by several factors. While my statement will provide more detail, key considerations include the fact that most mergers are between noncompeting banks, and those between entities in the same market have faced new entrants, antitrust constraints, and have found that smaller bank competitors effectively limit their ability to increase market share.

Overall, then, the picture that emerges is that of a dynamic U.S. banking structure with the number of banking offices increasing sharply and their location extremely sensitive to the demands of consumers. In such an environment it is potentially very misleading to make broad generalizations without looking more deeply into what lies below the surface. In part for the same reasons that make

generalizations difficult, the Federal Reserve devotes considerable care and substantial resources to analyzing individual merger applications.

**Federal Reserve Methodology for Analyzing Proposed Bank Mergers**

The Federal Reserve Board is required by the Bank Holding Company Act (1956) and the Bank Merger Act (1960) to assess the effects when (1) a holding company acquires a bank or merges with another holding company or (2) the bank resulting from a merger is a state chartered member bank. The Board must evaluate the likely effects of such mergers on competition, the financial and managerial resources and future prospects of the firms involved, the convenience and needs of the communities to be served, and Community Reinvestment Act requirements.

This section of my statement briefly discusses the methodology the Board uses in assessing a proposed merger. In light of the Committee's specific questions, emphasis is placed on competitive factors. In addition, more detailed discussion of the legal and economic bases for the Board's assessment of competition is found in Appendix B.

**Competitive Criteria**

In considering the competitive effects of a proposed bank acquisition, the Board is required to apply the same competitive standards contained in the Sherman and Clayton Antitrust Acts. The Bank Holding Company (BHC) Act and the Bank Merger Act do contain a special provision, applicable primarily in troubled bank cases, that permits the Board to balance public benefits from proposed mergers against potential adverse competitive effects.

The Board's analysis of competition begins with defining the geographic areas that are likely to be affected by a merger. Under procedures established by the Board, these areas are defined by staff at the local Reserve Bank in whose District the merger would occur, with oversight by staff in Washington. To ensure that market definition criteria remain current, and in an effort to better understand the dynamics of the banking industry, the Board has recently sponsored several surveys, including the 1988 National Survey of Small Business Finances, the national Survey of Consumer Finances, and telephone surveys in specific merger cases, to assist it in defining geographic markets in banking. These surveys and other evidence continue to suggest that small businesses and consumers tend to obtain their financial services in their local area. This local geographic market definition would, of course, be less important for the financial services obtained by large businesses.

With this basic local market orientation of consumers and small businesses in mind, the staff constructs a local market Herfindahl-Hirschman index (HHI), which is widely accepted as a sensitive measure of market concentration, in order to conduct a preliminary screen of a proposed merger. The merger would not be regarded as anticompetitive if the HHI and the change in that index do not exceed the criteria in the Justice Department's merger guidelines for banking. However, while the HHI is an important indicator of competition, it is not a comprehensive one. In addition to statistics on bank concentration, economic theory and evidence suggest that other factors, such as local market services available from nonbank providers of financial services and potential competition, may have important influences on bank behavior. These other factors have become increasingly important as a result of many recent

procompetitive changes in the financial sector. Thus, if the level and change in the HHI are within Justice Department guidelines, there is a presumption that the merger is acceptable, but if they are not, a more thorough economic analysis is required.

Because the importance of the other factors that may influence competition often varies from case to case and market to market, an in-depth economic analysis of competition is required in each of those merger proposals where the Justice Department HHI guidelines are exceeded. To conduct such an analysis of competition, the Board uses information from its own major national surveys noted above, from telephone surveys of consumers and small businesses in the market being studied, on-site investigations by staff, as well as from various standard databases with data on market income, population, deposits, and other variables. These data, along with results of general empirical research by Federal Reserve System staff, academics, and others, are used to assess the importance of various factors that may affect competition. To provide the Committee with an indication of the range of "mitigating" factors the Board may consider in evaluating competition in local markets, I shall briefly outline these considerations.

Potential competition, or the possibility that other firms may enter the market as a result of the merger, may be regarded as a significant procompetitive factor. It is most relevant in markets that are attractive for entry and where barriers to entry, legal or otherwise, are low. Thus, for example, potential competition is of relatively little importance in markets where entry via intra- or interstate branching is severely restricted, or in markets where branching is restricted and it may be difficult for investors to raise the minimum capital needed to start a bank. For potential competition

to apply, it will generally be necessary for there to be potential acquisition targets as well as meaningful potential entrants. This factor is most likely to be relevant in urban markets.

Thrift institution deposits are now typically accorded 50 percent weight in calculating statistical measures of the impact of a merger on market structure for the Board's analysis of competition. In some instances, however, a higher percentage may be included if thrifts in the relevant market look very much like banks, as indicated by the substantial exercise of their transactions account, commercial lending, and consumer lending powers.

Competition from other depository and nonbank financial institutions may also be given weight if such entities clearly provide substitutes for the basic banking services used by most consumers and small businesses. In this context, credit unions and finance companies may be particularly important.

The competitive significance of the target firm can be a factor in some cases. For example, if the bank being acquired is not a reasonably active competitor in a market, its market share might be given a smaller weight in the analysis of competition than otherwise.

Adverse structural effects may be offset somewhat if the firm to be acquired is located in a declining market. This factor would apply where a weak or declining market is clearly a fundamental and long-term trend, and there are indications that exit by merger would be appropriate because exit by closing offices is not desirable and shrinkage would lead to diseconomies of scale. This factor is most likely to be relevant in rural markets.

Competitive issues may be reduced in importance if the bank to be acquired has failed or is about to fail. In such a case, it may be desirable to allow some adverse competitive effects if this means



that banking services will continue to be made available to local customers rather than be severely restricted or perhaps eliminated.

A very high level of the HHI could raise questions about the competitive effects of a merger even if the change in the HHI is less than the Justice Department criteria. This factor would be given additional weight if there has been a clear trend toward increasing concentration in the market.

Finally, factors unique to a market or firm would be considered if they are relevant to the analysis of competition. These factors might include evidence on the nature and degree of competition in a market, information on pricing behavior, and the quality of services provided.

Some merger applications are approved only after the applicant proposes, or agrees to, the divestiture of offices in local markets that would otherwise violate Justice Department guidelines, and where the merger cannot be justified using any of the criteria I have just discussed. We believe that these divestiture actions have deterred many banking organizations from applying for mergers that would be acceptable to the Board only with divestitures that the applicant is not willing to make.

#### Safety and Soundness Criteria

In acting upon merger applications, the Board is required to consider financial and managerial considerations. In doing so, the Board's goal is to promote and protect the safety and soundness of the banking system, and to encourage prudent acquisition behavior by applicant banking organizations.

The Board expects that holding company parents will be a source of strength to their bank subsidiaries. In doing so, the Board

generally requires that the holding company applicant and its subsidiaries be in at least overall satisfactory condition, and that any weaknesses be addressed prior to Board action on a proposal. The holding company applicant must be able to demonstrate the ability to make the proposed acquisition without unduly diverting financial and managerial resources from the needs of its existing subsidiary banks.

The Board has long stressed the importance of capital in reviewing applications to expand. It is the Board's policy that acquisitions or mergers should not result in a diminution of the overall capital strength of the combined organizations. For this reason, the Board has generally expected that significant acquisitions or mergers be funded in whole or in part by the issuance of additional capital.

In this connection, the Board has held that banking organizations undertaking significant growth, either internally or through acquisitions or mergers, should operate with capital ratios well in excess of the supervisory minima, without significant reliance on intangible assets. The Board has indicated that this cushion should be at least 100 to 200 basis points above the minimum ratios; still larger margins could be called for, depending on the actual financial condition of the organization and the risks being undertaken. This emphasis on capital underlies the Board's strong preference that expansionary applications be substantially financed from the proceeds of equity.

Applications from organizations that do not meet these capital standards would not be approved unless the organization has underway a capital augmentation program and can demonstrate the ability to raise additional tier I (essentially equity) capital contemporaneously with the acquisition. As noted, additional capital

may also be required to correct any weaknesses in the bank or company to be acquired. This public policy serves to protect the existing satisfactory financial strength of the organization and to prevent an undesirable decline in capital adequacy caused by the acquisition of significant additional assets. It also can serve to moderate the rate of expansion and enable the organization to absorb the additional risks.

These general principles apply regardless of the type of acquisition--banking or nonbanking. The financial and managerial analysis of the applicant includes an evaluation of the existing bank, nonbank subsidiaries, the parent company, the consolidated organization, and the entity to be acquired.

#### Community Reinvestment Act Criteria

The Community Reinvestment Act (CRA) performance of banking organizations that seek the Board's approval to acquire a bank or thrift is a major component of the "convenience and needs" criteria that must be considered by the Board. In making its judgments, the Board pays particular attention to CRA examination findings. In addition, any comments received from the public regarding an applicant's CRA performance become part of the official record, and such comments are reviewed carefully. Indeed, the Board has just announced its intention to hold public meetings in various locations on the CRA record of the banks involved in a major merger application.

Banks supervised by the Federal Reserve System--regardless of the size or the geographic scope of a bank's operations--are examined for CRA purposes at least every 18 to 24 months. Banking organizations with identified weaknesses in their consumer compliance are examined even more frequently. Our practice is to review the

performance of banks with large intrastate branching systems by examining a sample of branches, which consists of all major branches plus one-tenth of all small branches selected on a rotating basis. This type of system probably could be used for large, interstate branch systems as well, if the Congress agrees to permit interstate branching. Some adjustments may be necessary, though, to ensure that the CRA examination process continues to work well for banking organizations that span several states.

The Board expects that banking organizations will have policies and procedures in place and working well to address and implement their CRA responsibilities prior to Board consideration of bank expansion proposals. These efforts must include methods for ascertaining the credit needs of the entire service area, including low and moderate income neighborhoods; credit products designed to meet those identified needs; outreach and marketing efforts throughout this service area; involvement by senior management and the institution's board of directors in establishing and supervising the implementation of those efforts; and a record of performance in helping to meet the community's credit needs through products that are consistent with the institution's overall business orientation.

The Board generally does not accept promises for future action in this area as a substitute for a demonstrated record of performance. Instead, the Board has accepted commitments for future action as a means of addressing areas of weakness in an otherwise satisfactory record. Where commitments have been accepted, the Board monitors progress in implementing the proposed actions, both through reports and through the application process.

Protection of the Deposit Insurance Fund

In recent years, many bank merger and acquisition cases have involved failed or failing banks. By far the most common resolution method used by the FDIC has been the so-called "purchase and assumption" procedure. Under this procedure, a healthy banking organization assumes all or a part of the assets and liabilities of a failed or failing bank. The Federal Reserve favors continuing to give the FDIC some flexibility in how it resolves such banks.

The need for flexibility derives from our concern about the possibility of systemic risk associated with a failing bank. Systemic risk refers to the chance that financial difficulties at one bank, or possibly a small number of banks, may spill over to many more banks and perhaps the entire financial system. In principle, systemic risk could develop if a number of smaller or regional banks were to fail. However, in practice systemic risk is more likely to be associated with failures of large institutions. In any event, in some individual cases the prevention of systemic risk can be an important factor in assessing a proposed merger or acquisition.

That systemic risk is most likely in cases of financial distress at large institutions raises a public policy concern with mergers that create large banking organizations. Clearly, it would be unwise to approve mergers that significantly increase systemic risk. For this reason the Board places great weight on the capital ratio, and other indicators of financial strength that I have already discussed, of the combined firm in any merger application that comes before it.

However, there is an additional point that should be stressed. The logical connection between bank merger policy and the potential for systemic risk emphasizes the interdependence between our

discussion today and the need for comprehensive reform of our system of banking and financial regulation. If the United States is to have a safe, sound, competitive and profitable banking system, then the Board strongly urges that the Congress pass a broad reform package along the lines of that proposed by the Treasury and supported by the Board. Such legislation would call for strong capital, prompt corrective action policies to deal with financially distressed depositories, frequent on-site examinations, increased opportunities for geographic diversification of risk and reduced costs through full interstate branching, and a broader range of permissible activities for financial services holding companies with well-capitalized bank subsidiaries. By increasing the safety and soundness of our banking system, these reforms would lessen the likelihood of a major systemic threat, and would allow our banking system to adjust to evolving market and technological realities. But even with these reforms, the Board believes it would be a mistake to eliminate entirely the ability of the authorities to act to protect the economy by assisting in the acquisition of a large failing bank in such a way as to protect all depositors. We agree that this approach has been overused in the past, and requires some constraints. We urge, however, that the authorities' hands not be tied as they would be under H.R. 6.

#### Potential Implications of Bank Mergers

The increased rate of bank mergers has raised a number of concerns regarding the potential effects of banking consolidation on consumers whose demands for banking services are primarily local in nature, on the performance of the merged banks (including prices paid by consumers at those banks), and on the overall structure of the U.S. banking industry.

Effects of Mergers on Locally Limited Customers

The current merger wave in the banking industry is likely to have only modest effects on the availability of services to consumers and small businesses that rely primarily on local providers for their financial services. There are two reasons for this: (1) to date, most mergers have not been between banks operating in the same local banking markets; and (2) the effects of intramarket mergers can be, and thus far have been, limited by antitrust constraints on such mergers.

Even in those places where in-market mergers have occurred, the effect on competition has on average not been substantial. This, of course, does not mean that no consumers have ever been harmed by mergers. No policy can guarantee that result. But it does suggest that increases in local market concentration have been limited by the Board's application of antitrust standards to within-market merger applications. In addition, the Board's policies have almost certainly discouraged some potential bank mergers before an application was ever filed. Moreover, considerable intramarket consolidation could occur without significant anticompetitive effects. Many urban markets could see a relatively large number of in-market mergers before antitrust guidelines would be violated. Recent legislative changes have made thrift institutions more important competitors for banking services, and this has helped to reduce concerns about anticompetitive effects from intramarket bank mergers.

Although, as I shall be discussing shortly, small banks remain viable competitors in markets after larger bank mergers, some research suggests that large banks may adopt new banking technologies --such as automated teller machines and bank credit cards--more rapidly than small banks. Thus, bank mergers may enhance consumer

convenience. On the other hand, in-market bank mergers often lead to some branch closings, raising concerns that consumer convenience may be harmed. Indeed, one of the factors reviewed in a CRA examination is the bank's record of opening and closing offices. However, as I pointed out earlier, there has been a substantial increase in the number of bank offices in the U.S. in recent years. More important, there is no reason to suspect that the market factors that have led to this increase in the number of offices have changed. Indeed, the abolition of constraints on interstate branches would greatly facilitate this process. That is, if merging banks should close branches, the opening of branches by existing competitors or by new entrants to the market is, based on past experience, likely to occur, and would become even more so with full interstate branching. If consumers demand locational convenience, banks of all sizes will need to be responsive if they expect to remain viable.

#### Effects of Mergers on Bank Performance

Federal Reserve System staff have conducted several studies over many years on the effects of bank mergers and acquisitions. Some of these studies have focused on the effect of mergers on bank profits and prices, while others have looked at the potential for cost savings and efficiencies derived from mergers. At the Committee's request, a detailed review of the studies appears in Appendix C.

Of those studies concerned with profits and prices, some have looked at the effects of specific mergers, while a majority have approached this issue more indirectly by examining how bank profits and prices differ across banking markets. Each type of study is relevant to an assessment of the impact of bank mergers on performance.



Studies of differences in bank profitability across markets with varying degrees of concentration represent the oldest type of study relevant to the issue. Typically, such studies have found that banks operating in more concentrated markets exhibit somewhat higher profits than do banks in less concentrated markets. These higher profits may reflect the lesser degree of competition in more concentrated markets. Many have argued, however, that they are simply an indication of the greater efficiency and lower costs of the largest firms in such markets. Because of this fundamental disagreement, there is no consensus concerning the meaning of this type of study for merger policy.

Other studies have looked across banking markets for differences in the prices that banks charge their loan and deposit customers. For the most part, such studies have found that banks located in relatively concentrated markets tend to charge higher rates for certain types of loans, particularly small business loans, and tend to offer lower interest rates on certain types of deposits, particularly transactions accounts, than do banks in less concentrated markets. These studies tend to be clearer in terms of their implications for merger policy, because they suggest that mergers resulting in relatively high levels of local banking market concentration can adversely affect local bank customers. That is, these studies support the need to maintain antitrust constraints if locally limited bank customers are to continue to receive competitively priced banking services.

Whether or not specific past mergers have resulted in higher loan rates, lower deposit rates, or in other ways disadvantaged banking customers is very much a different question. Studies of the competitive impact of individual bank mergers in essence focus on the

issue of whether regulatory authorities have been successful in applying antitrust constraints.

In general, such studies have been rare, making generalizations hazardous. Of those studies that have been conducted, however, no evidence of significant anticompetitive effects attributable to past mergers has been found. One such effort examined the impact of the merger of two large in-state banks on two types of deposit rates, and found no adverse effects on bank customers. Other studies using different approaches have also failed to find anticompetitive effects. Thus, it appears that while significant mergers, particularly intramarket mergers that directly affect market concentration, can in principle adversely affect banking customers, there is no direct evidence to date that those mergers passing regulatory scrutiny have in fact done so.

A related issue relevant to the effect of mergers concerns the prospect that, through merger, greater bank efficiency can be achieved, thus yielding a healthier, more competitive banking firm. As in the case of the bank pricing studies, studies of the effect of mergers on bank efficiency may be divided into those that do and those that do not look at the effects of specific mergers.

A large number of studies have sought to determine whether larger banking organizations exhibit lower average costs than do smaller organizations. In general, these studies of "scale economies" find that cost advantages of large firms either do not exist or are quite small, and most do not find scale economies to exist beyond the range of a small- to medium-sized bank.

Another strand of research has attempted to discover whether there are important differences in the efficiency with which banks use inputs to produce a given level of services. These studies, which

essentially focus on management skills, suggest that some banks, both large and small, are just a lot better than others at using their inputs, such as labor and capital, in a productive way. Indeed, estimates of these so-called cost inefficiencies suggest that management skills dominate any benefits from economies of scale. In addition, there is some evidence that these differences in management efficiencies play a role in the incidence of bank failure. An estimated over 50 percent of the bank failures in the 1980s came from the highest (noninterest) cost quartile of banks, while fewer than 10 percent are estimated to have occurred in the lowest cost quartile.

In the past couple of years, a number of researchers have sought to determine whether individual past mergers have resulted in cost savings. Typically, such studies examine the changes in noninterest expenses observed before and after the merger and, in some cases, compare them to the same changes observed concurrently in banks that did not participate in mergers. With one or two exceptions, these studies generally have not found evidence of substantial cost savings beyond those associated with shrinkage of the firms in question after merger.

However, the previously noted evidence indicating substantial differences in the relative efficiency of banks suggests that substantial cost savings are theoretically possible for many banks. For example, a study recently completed at the Board has estimated that annual cost savings on the order of \$17 billion would result if the lowest cost banks in the country were to acquire the highest cost banks, and if the costs of the acquired banking organizations were subsequently reduced to the level of the acquiring banks. While some of these cost differences may simply reflect differences in the level of services offered to the public, such results are nevertheless

suggestive of potential gains from acquisitions of inefficient firms by efficient ones. Indeed, they indicate that one possible future scenario, as banking becomes even more competitive, is that it may become increasingly common for relatively efficient banks to take over relatively inefficient ones and convert the more poorly performing institutions into viable, low-cost competitors. Surely consumers of financial services could only be better off if such a future were to occur, and competitive markets maintained.

Once again, however, I would point out and emphasize the connections between our discussion here today and the need for fundamental reform of our banking and financial regulatory system. Achievement of the scenario I have just described depends heavily upon creating an environment not only in which banks can compete more effectively, but also one where the likelihood that the deposit insurance funds will suffer losses is greatly reduced, such as would occur with higher capital, more frequent examinations, and prompt corrective action. Such reforms would put even more pressure on inefficient banks to achieve cost economies. In this regard, I would emphasize one more key point. Care should be taken to ensure that the bank reform package does not impose costly new regulations on banks that would substantially offset the cost savings that result from other reform actions. A competitive, safe, and sound banking system must also be one in which banks can make a profit.

#### The Effects of Mergers on Banking Structure

Ultimately, the effects of bank mergers on consumer welfare depend to a substantial extent on the resulting degree of concentration in local banking markets. As I have already indicated, one of the tasks of public policy is to apply the antitrust standards

in such a way as to maintain competitive banking markets. Because it appears that anticompetitive concerns are normally most serious in local banking markets, this section provides somewhat more detail on the implications of bank mergers for local market concentration. In addition, since the Committee's letter of invitation asked for some ideas on what the U.S. banking industry might look like by the 21st century, I shall briefly address this inherently highly speculative issue.

Metropolitan Statistical Areas (MSAs) and non-MSA counties are often used as proxies for urban and rural banking markets. The average three-firm concentration ratio for urban markets so measured increased by only one percentage point between 1980 and 1990 (see table A-6 in Appendix A). Average concentration in rural counties was virtually unchanged. Thus, despite the fact that there were over 5,000 bank mergers during the 1980s, local banking market concentration has remained about the same.

Why haven't all of these mergers increased concentration by a greater amount? There are a number of reasons. First, as I have already indicated, many mergers are between firms operating in different local banking markets. While these mergers may increase national or state concentration, they do not increase concentration in any local banking market.

Second, as I have also already pointed out, there is new entry into banking markets. In most markets new banks can be formed fairly easily, and some key regulatory barriers, such as restrictions on interstate banking, are much lower than they used to be. Anecdotal evidence suggests that new independent local banks have been formed in many of the banking markets that are dominated by the large multistate banks.

Third, the Committee may be surprised to discover that the evidence overwhelmingly indicates that banks from outside a market usually cannot increase their market share after entering a new market by acquisition. An oft-mentioned example here is the inability of the New York City banks to gain significant market share in upstate New York. More general studies indicate that, when a local bank is acquired by a large out-of-market bank, there is normally some loss of market share. The new owners are not able to retain all of the customers of the acquired bank.

Fourth, it is important to emphasize that small banks have been and continue to be able to retain their market share and profitability in competition with larger banks. Our staff has done repeated studies of small banks; all these studies indicate that small banks continue to perform as well as, or better than, their large counterparts, even in the banking markets dominated by the major banks.

Finally, administration of the antitrust laws has almost surely played a role. At a minimum, banking organizations have been deterred from proposing seriously anticompetitive mergers. And in some cases, to obtain merger approval, banks have agreed to divest banking assets and deposits in certain local markets where the merger would have otherwise resulted in substantially adverse effects.

#### Future Banking Structure

Where will all of these mergers and changes in banking lead us? What will the future structure of the banking industry look like? To the extent that such forecasts can reasonably be made, it seems quite likely that the future will contain thousands of small banks, some regionals, some super-regionals, and a small number of large

nationwide banks. There is no reason to believe that small banks will not continue to remain viable head-to-head competitors in local markets with their larger rivals. These rivals will be both regional banks and a few nationwide banks with offices in hundreds of local markets coast to coast. Some of today's large bank mergers are probably the early stage of the formation of nationwide banks.

I hesitate to make a prediction as to the number of banking organizations in the future. There is simply no way to know or forecast that number with any high degree of certainty. However, a recent study by Board staff attempted to make some ballpark projections in this matter. Relying primarily on trends observed in the 1970s and 1980s, and on the assumption that interstate banking would be allowed through holding companies rather than through branches, this study projected that the total number of U.S. banking organizations could be about 5,500 by the year 2010. This number of holding companies probably implies between 6,000 and 7,000 banks. These 5,500 banking organizations include a large number of local community banks, in addition to regional banks and large, nationally active banking organizations. I would guess that full interstate banking via branching would reduce the number of banking organizations only somewhat further, because the staff study had already assumed interstate operations through the more expensive option of using multi-bank holding companies.

### Conclusion

The increased pace of bank mergers since the early 1980s has greatly reduced the number of U.S. banking organizations, and resulted in a substantially higher nationwide concentration of banking assets at the 100 largest banks. However, concentration in local banking

markets, which is normally considered most important for the analysis of potential competitive effects, has remained virtually unchanged. In addition, there have been a large number of new bank entrants and a sharp increase in the number of banking offices. This illustrates that the U.S. banking structure is highly dynamic, and that sweeping generalizations are extremely difficult to make.

The dynamic nature of U.S. banking means that analysis of the potential competitive and other effects of individual bank mergers must be done on a case by case, market by market, basis. The Federal Reserve devotes considerable resources to this end. Key factors, including actual competition from bank and nonbank sources, potential competition, the general economic health of the market, a variety of factors unique to a given market, and, in the case of mergers involving failed or failing firms, systemic risk are all considered. In addition, safety and soundness and CRA concerns are highly relevant. In the end, complex judgments are required to ensure the appropriate balance of benefits and costs in the public interest.

To date, the available evidence suggests that recent mergers have not resulted in adverse effects on the vast majority of consumers of banking services. It is certainly possible that some customers have been disadvantaged by some mergers. And, mergers can no doubt be very disruptive to bank employees as functions are consolidated and reorganized. But these disruptions do not appear to differ substantively from similar disruptions in other industries undergoing fundamental change.

It is also clear that substantial harm to consumers would occur if mergers were allowed to decrease competitive pressures significantly. Thus, it is crucial that antitrust standards be enforced by the bank regulatory agencies and the Department of



Justice. Given the record of success to date, the Board believes that our current statutory authority in this area is sufficient to meet existing and foreseeable concerns. However, if future developments warrant, the Board would not be reluctant to seek additional authority in this area.

The evidence to date does not indicate that substantial cost savings have resulted from bank mergers. However, our staff work does suggest the potential for such savings if well-managed entities acquire and modify the operations of high-cost organizations. Given the continuing pressures for cost minimization in banking, it certainly seems possible that some of the potential will be realized in the future.

Last, I would emphasize once again the close link between our discussion here and the need for comprehensive reform of our system of banking and financial regulation. All of us want consumers of financial services to have available competitively priced, high quality banking services, and we want to ensure that U.S. taxpayers are not exposed to excessive risk of loss through the deposit insurance fund. To achieve these objectives, U.S. banks must have the ability to compete effectively and profitably both at home and abroad, and U.S. regulators must be able to act in timely and effective ways. The Board therefore urges the Congress to pass the reform proposals that have been advanced by the Treasury and supported by the Board.

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APPENDIX A

STATISTICAL TABLES

Table A-1

Bank Mergers and Acquisitions 1978-1989\*

	<u>Number of Bank Mergers</u>	<u>Bank Assets Acquired (\$ bill.)</u>
1978	144	5.5
1979	179	7.5
1980	188	9.3
1981	359	19.5
1982	422	37.1
1983	432	43.0
1984	553	82.7
1985	553	64.7
1986	625	89.1
1987	710	131.4.
1988	592 prel.	107.5 prel.
1989	550 est.	60.0 est.

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\*Source: Stephen A. Rhoades, "Mergers and Acquisitions by Commercial Banks, 1960-1983," Staff Studies, No.142 (Federal Reserve Board, January 1985) and updates. Numbers do not include acquisitions of failed banks.

prel.-Figures are preliminary.

est.-Estimate.

Table A-2

Mergers and Acquisitions of Commercial Banking Organizations  
where Both Partners were Over \$1 billion in Deposits (1980-1990)\*

<u>Year</u>	<u>Number Large Acquisitions</u>	<u>Number Large Interstate</u>
1980	0	0
1981	1	0
1982	2	0
1983	6	1
1984	14	5
1985	7	3
1986	20	12
1987	18	13
1988	18	12
1989	6	3
1990	7	3

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\* Does not include acquisitions of thrifts or failing firms.  
Commercial banking organizations can either be commercial bank holding companies or independent commercial banks.

Source: The American Banker. The Bank Expansion Quarterly and The Banking Policy Report, The Secura Group, Washington, D.C. Banking Policy Reports, Danielson Associates Inc., Rockville, MD. Federal Reserve Bulletin, Federal Reserve Press Releases and Reserve Banks. Annual Call Reports, Stephen A. Rhoades, "Mergers and Acquisitions by Commercial Banks, 1960-1983," Staff Study No. 142 (Federal Reserve Board, January 1985).

Table A-3

Number of Banks and Banking Organizations, by Year (1970-1990)<sup>1</sup>  
(United States as a Whole)

<u>Year</u>	<u>Banks</u>	<u>Banking Organizations</u>	<u>Number of Banking Offices<sup>2</sup></u>
1970	13,502	12,644	31,209 <sub>3</sub>
1971	13,603	12,586	
1972	13,722	12,464	34,042
1973	13,965	12,404	36,140
1974	14,217	12,368	38,051
1975	14,372	12,396	39,957
1976	14,396	12,403	41,304
1977	14,397	12,398	44,343
1978	14,374	12,384	45,736
1979	14,668	12,727	46,817
1980	14,737	12,679	48,530
1981	14,717	12,515	50,162
1982	14,706	12,261	51,796
1983	14,646	11,950	52,599
1984	14,636	11,643	52,883
1985	14,587	11,377	53,364
1986	14,379	10,872	54,457
1987	13,870	10,470	55,894
1988	13,303	10,183	57,336
1989	12,901	9,908	54,965
1990	12,526	9,688	59,842

Source: Bank Call Reports

1. Banking organizations are consolidated in the case of bank holding companies, and numbers refer to FDIC-insured commercial and savings banks.
2. Number does not include branches with deposits of zero.
3. Number missing due to lack of data in 1971.

Table A-4

The Asset Size Distribution of Banking Organizations, by Year (1970-1990)<sup>1</sup>  
(United States as a Whole)

Year	<sup>3</sup>	<sup>3</sup>	Number of Organizations by Size (1989 dollars) <sup>2</sup>				
	CR50	CR100	<100M	100-300M	300M-1B	1-10B	>10B
1970	41%	50%	10,885	1,149	392	197	21
1971	40%	50%	10,673	1,263	409	221	20
1972	40%	50%	10,411	1,354	438	237	24
1973	41%	51%	10,325	1,363	442	249	25
1974	42%	52%	10,388	1,288	421	247	24
1975	41%	51%	10,424	1,293	415	242	22
1976	40%	50%	10,382	1,335	422	238	26
1977	40%	50%	10,255	1,434	435	247	27
1978	41%	51%	10,191	1,479	430	257	27
1979	38%	47%	10,327	1,552	495	323	30
1980	38%	48%	10,407	1,444	490	311	27
1981	38%	48%	10,293	1,429	462	304	27
1982	40%	51%	10,055	1,437	443	296	30
1983	41%	52%	9,722	1,444	463	288	33
1984	42%	53%	9,360	1,510	450	284	39
1985	43%	55%	9,053	1,553	448	276	47
1986	45%	57%	8,526	1,583	441	263	59
1987	46%	59%	8,229	1,494	441	245	61
1988	48%	60%	7,948	1,478	448	250	59
1989	49%	61%	7,630	1,529	449	243	60
1990	50%	62%	7,183	1,685	507	253	60

Source: Bank Call Reports.

1. Size is measured by consolidated domestic banking assets. Banking organizations refer to FDIC-insured commercial banking organizations and savings banks.
2. Figures are adjusted using the consumer price index.
3. CR50 and CR100 denote the proportion of domestic banking assets accounted for by the largest 50 and 100 banking organizations, respectively.

Table A-5

## Entry and Exit in Banking, 1980-1989

Year	Number				
	New Banks	Failure of FDIC-Insured Banks	Mergers and Acquisitions	Bank Branches	
				Openings	Closings
1980	206	10	188	2,397	287
1981	199	10	359	2,326	364
1982	316	42	422	1,666	443
1983	366	48	432	1,320	567
1984	400	79	553	1,405	889
1985	318	120	553	1,480	617
1986	248	145	625	1,387	763
1987	212	203	710	1,117	960
1988	234	220	592 prel.	1,676	1,082
1989	201 prel.	208	N.A.	1,730 prel.	687 prel.
Total	2,700	1,085	4,434	16,504	6,659

Sources: From Stephen A. Rhoades, "Commercial Banking: Two Industries and A Laboratory for Research." New bank data for 1980-1987 are from Dean F. Amel, "Trends in Banking Structure since the Mid-1970s," Federal Reserve Bulletin (March 1989), p.124 and for 1988 and 1989 the data are from the Federal Reserve Board, Annual Statistical Digest, 1988 and preliminary Digest data for 1989. Failure data are from Annual Reports of the Federal Deposit Insurance Corporation and statistical releases. Mergers and acquisitions data are from Stephen A. Rhoades, "Mergers and Acquisitions by Commercial Banks, 1960-1983," Staff Studies, No.142 (Federal Reserve Board, January 1985) and updates. Branch openings and closings are from the Federal Reserve Board, Annual Statistical Digest, relevant years and preliminary data for 1989.

est.-Figures are estimated.

prel.-Figures are preliminary.

N.A.-Not Available

Table A-6

Average Three-Firm Concentration Ratios for  
Urban and Rural U.S. Banking Markets, 1976-1990<sup>1</sup>

<u>Year</u>	<u>Average three-firm concentration ratio</u>	
	<u>Urban markets</u>	<u>Rural markets</u>
1976	68.45	90.06
1977	67.79	89.97
1978	67.29	89.88
1979	66.78	89.75
1980	66.39	89.65
1981	66.04	89.45
1982	65.83	89.38
1983	65.92	89.41
1984	66.34	89.44
1985	66.71	89.47
1986	67.51	89.47
1987	67.67	89.53
1988	67.78	89.68
1989	67.51	89.70
1990	67.35	89.59

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1. Concentration ratios measured in deposits.

Source: Summary of Deposits.



## APPENDIX B

### LEGAL AND ECONOMIC FOUNDATIONS FOR THE BOARD'S ANALYSIS OF COMPETITION IN BANK MERGERS AND ACQUISITIONS

This appendix provides an overview of the legal and economic foundations for bank merger analysis at the Federal Reserve.

#### I. Legislative and Judicial Foundations

Prior to 1960, the Board and other federal bank regulators were required to review applications for bank mergers and acquisitions but there was no meaningful requirement to assess the competitive effects.<sup>1</sup> The Board's responsibility for assessing the competitive effects of mergers stems from the Bank Merger Act passed by Congress in 1960 and the Bank Holding Company Act (1956). As originally enacted, the Bank Merger Act required that

the appropriate agency shall also take into consideration the effect of the transaction on competition (including any tendency toward monopoly)...

The original Bank Merger Act and Bank Holding Company Act, however, did not specify what standards the banking agencies should apply in assessing the competitive effects of a bank merger or acquisition and it was unclear whether the antitrust laws were applicable. The Supreme Court clarified this matter in the Philadelphia National Bank case (1963), wherein the Court clearly held that the antitrust laws, and in particular section 7 of the Clayton Act (1914), apply to banking. Specifically, the Court stated that

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1. An assessment of competitive effects of bank holding company acquisitions (in contrast to mergers) was required by the Bank Holding Company Act of 1956. Since, however, prior to 1960 there were very few significant holding company acquisitions and most bank consolidations were accomplished by merger, the competitive requirement of the Bank Holding Company Act was rarely applied and thus received little attention.

[Section 7] does require, however, that the forces of competition be allowed to operate within the broad framework of governmental regulation of the industry. The fact that banking is a highly regulated industry critical to the Nation's welfare makes the play of competition not less important but more so.

The Court's opinion regarding the applicability of section 7 of the Clayton Act to banking was reaffirmed by the Congress in 1966 when it amended both the Bank Merger Act (1960) and the Bank Holding Company Act (1956), and when it passed the Change in Bank Control Act (1978). The amendments introduced the language of section 7 into the banking laws' provisions for the regulatory assessment of competition. Specifically, section 7 states:

That no corporation engaged in commerce shall acquire, directly or indirectly, the whole or any part of the stock or other share capital and no corporation subject to the jurisdiction of the Federal Trade Commission shall acquire the whole or any part of the assets of another corporation engaged also in commerce, where in any line of commerce in any section of the country, the effect of such acquisition may be substantially to lessen competition or to tend to create a monopoly.  
[emphasis added]

While the standards of section 7 are broad, two points are explicit: (1) both product and geographic markets (i.e., "...in any line of commerce in any section of the country...") must be defined and (2) competition must be assessed or measured (i.e., "...the effect of such acquisition may be substantially to lessen competition..."). These two requirements of section 7 are not only legal requirements but reflect the fundamental steps that are required in a good economic analysis of

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2. United States v. Philadelphia National Bank, 374 U.S. 321, 372 (1963).

competition. Thus, the law's requirements do not impose a purely legal exercise on bank regulators.

#### Analytical Framework

In addition to clarifying the applicability of the antitrust laws to banking, the Philadelphia National Bank case is important in three other respects. First, the Court clearly accepted the economic theory and evidence suggesting that market structure, as measured by concentration and market shares, is a major factor in assessing competition in a market. The Supreme Court observed that

a merger which produces a firm controlling an undue percentage share of the relevant market and results in a significant increase in the concentration of firms in that market is so inherently likely to lessen competition substantially that it must be enjoined in the absence of evidence clearly showing that the merger is not likely to have such anticompetitive effects.<sup>3</sup>

Second, the Court accepted the evidence and argument that important classes of customers are locally limited and therefore the local geographic area is the relevant geographic market for an analysis of competition in banking. According to the Court,

Large borrowers and large depositors...may find it practical to do a large part of their banking business outside their home community; very small borrowers and depositors may, as a practical matter, be confined to bank offices in their immediate neighborhood... Individuals and corporations typically confer the bulk of their patronage on banks in their local community; they find it impractical to conduct their banking business at a distance...The factor of convenience localizes banking competition as effectively as high transportation cost in other industries.

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3. Ibid., p. 363.

4. Ibid., p. 360.

Third, the Court found that commercial banking services as a whole constitute a distinct and relevant product market for analyzing the competitive effect of a merger.

We agree with the District Court that the cluster of products (various kinds of credit) and services (such as checking accounts and trust administration) denoted by the term "commercial banking" composes a distinct line of commerce. Some commercial banking products or services are so distinctive that they are entirely free of effective competition from products or services of other financial institutions; the checking account is in this category. Others enjoy such cost advantages as to be insulated within a broad range from substitutes furnished by other institutions. For example, commercial banks compete with small-loan companies in the personal-loan market; but the small-loan companies' rates are invariably much higher than the banks', in part, it seems, because the companies' working capital consists in substantial part of bank loans. Finally, there are banking facilities which, although in terms of cost and price they are freely competitive with the facilities provided by other financial institutions, nevertheless enjoy a settled consumer preference, insulating them, to a marked degree, from competition; this seems to be the case with savings deposits.<sup>5,6</sup>

In short, the Bank Merger Act and the Bank Holding Company Act as interpreted by the Court and as amended by Congress in 1966, require the Board to assess the competitive effects of bank merger and acquisition applications according to the standards of section 7 of the Clayton Act. The economic evidence and analysis presented to the Supreme Court in Philadelphia National Bank (1963) led the Court to conclude that in assessing competition, the relevant product market is commercial banking

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5. Ibid., pp. 356-357.

6. As will be noted later, the courts recognize that marketplace and legislative developments have changed the competitive environment for banking services since Philadelphia National Bank. However, the courts continue to hold that fundamental changes in the analytical approach used in Philadelphia National Bank must be based on systematic empirical evidence.

as represented by the cluster of banking products and services, the relevant geographic market is a local area, and market structure is an important determinant of competition.

Since Philadelphia National Bank, the courts have indicated a willingness to consider the argument that, as a result of changes in the financial sector, commercial banking services as a whole are not a single product line and that competition may extend beyond local markets. However, the courts have consistently held that arguments for changing the basic market definition in banking must be based on persuasive economic evidence. For example, in United States v. Connecticut National Bank (1974) the Supreme Court noted the increasing similarities of thrifts to commercial banks and argued that,

at some stage in the development of savings banks it will be unrealistic to distinguish them from commercial banks...[and]...that point may well be reached when and if savings banks become significant participants in the marketing of<sup>7</sup> bank services to commercial enterprises.

Similarly, in a recent case (1987) appealed by the Justice Department, a Court of Appeals held that the District Court did not err when it,

concluded that the government failed to factually support its claim that existing circumstances in this case warranted a departure from the definition of the relevant product market as the cluster of banking services traditionally offered in the commercial banking industry adopted by the Supreme Court in United States v. Philadelphia National Bank.<sup>8</sup>

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7. United States v. Connecticut National Bank, 418 U.S. 656 (1974).

8. United States v. Central State Bank, 817 F.2d 22 (6th Cir., 1987).

In another context, the courts highlighted the weight they would attach to economic evidence in Marine Bancorporation when the government applied a "linkage" theory of oligopoly. The Supreme Court noted:

Apart from the fact that the government's statewide approach is not supported by the precedents, it is simply too speculative on this record. The government's underlying concern for a linkage or network of statewide oligopolistic banking markets is, on this record at least, considerably closer to 'ephemeral possibilities' than to 'probabilities.' To assume, on the basis of essentially no evidence, that the challenged merger will tend to produce a statewide linkage of oligopolies is to espouse a per se rule against geographic market extension mergers like the one at issue here. No section 7 case from this court has gone that far, and we do not do so today.

#### Conclusion

A combination of economic analysis, legislation, and court decisions provide the rationale and analytical framework for the Board's evaluation of the competitive effects of bank mergers and acquisitions. This is not a strictly fixed framework but may be changed to account for institutional arrangements and technological advances that evolve. However, it is evident that the courts expect systematic evidence and analysis rather than casual empiricism to provide the foundation for changing the framework. At present, nonbank thrift institutions are included in the Board's competitive analysis on the basis of evidence regarding their similarity to commercial banks, on a case-by-case basis. Additionally, based on recent survey evidence covering consumers and small businesses, the competitive analysis generally focuses on local geographic

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9. United States v. Marine Bancorporation, 418 U.S. 602, 622-23 (1974).

markets and treats banking as a line of commerce. In some cases involving larger banks or nonbank activities, the competitive analysis will focus on specific product lines and use regional, national, or even global market definitions.

## II. Market Definition

A major concern of antitrust policy is to assess the competitive effects of mergers and, in particular, identify those mergers that have the potential for creating market power. The definition of the relevant market over both product and geographic dimensions is crucial for any economic analysis of the effects of a proposed merger. Based on microeconomic theory, defining a market is conceptually straightforward: a market may be characterized as a group of buyers and sellers that significantly influences price, quality, and production of specific products or services, and the geographic market area is the area that encompasses these buyers and sellers. In a fundamental sense, markets are defined in order to better predict the behavior of firms, where the behavior of firms depends, in part, on competing producers of the same product or close substitutes.

The Supreme Court has recognized the importance of the economic concept of the market and instructed repeatedly that: "Determination of the relevant product and geographic markets is a 'necessary predicate' to deciding whether a merger contravenes the Clayton Act."<sup>10</sup> Economic

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10. United States v. Marine Bancorporation, 418 U.S. 602, 618 (1974), quoting United States v. DuPont and Co., 353, U.S. 586, 593 (1957).

theory and evidence provide the foundation for determining the relevant market. While the concept of a market is fairly straightforward, it is often difficult to use in practice as is the concept of money.<sup>11</sup>

### Theory of the Market

The classical definition of a market arose from Alfred Marshall who essentially assumed the existence of a product market and suggested that geographic markets be delineated simply depending on whether "prices of the same goods tend to equality, easily and quickly," with due allowances made for transportation costs.<sup>12</sup> In the same vein, Joan Robinson delineated a product market by all sellers of a commodity "which may be regarded as homogeneous within itself," and notes that in defining the relevant industry, there would be cases "where a commodity in the real world is bounded on all sides by a marked gap between itself and its closest substitutes."<sup>13</sup> Even Chamberlin, with his focus on differentiated products, assumed the existence of a collection of producers of fairly close substitutes.<sup>14</sup>

A classically defined market has been interpreted to be that area in which prices are linked to one another but independent of prices of

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11. An analogy can be made to defining the money supply where the concept is fairly straightforward, but, in practice, the distinctions between components of M1, M2, M3, etc., are not always clear.

12. Alfred Marshall, Principles of Economics, Book V (London: Macmillan, 1920), p. 324.

13. Joan Robinson, The Economics of Imperfect Competition, 2nd ed. (New York: St. Martin's Press, 1969), p. 17.

14. Chamberlin, however, later expresses doubts about the existence of a meaningful real-world counterpart to this collection of producers. Edward Chamberlin, The Theory of Monopolistic Competition, 5th ed. (Cambridge: Harvard University Press), p. 140.



goods not in the market, i.e., an area within which partial equilibrium analysis is valid. More formally, a market can be defined by those products with non-trivial degrees of substitutability, as measured by their cross-elasticities of demand and supply.<sup>15</sup> The cross-elasticity of demand relates the quantity demanded by consumers of one product to the price of another; the cross-elasticity of supply relates the quantity produced by a seller of one product to the price of another. For example, suppose a firm were to increase the price of its product and quantity falls. The loss in quantity would be greater if: (1) the product has better substitutes so that consumers would switch to other products; or (2) other producers would expand output by greater amounts (or more producers of another product would switch to producing the product). If the loss in quantity to other producers (both of the same and similar products) is large enough to offset the price increase so that profits fall, cross-elasticities are considered to be high.

The concept of cross-elasticity then is fundamental to the concept of a market because it provides the basis for assessing the degree of substitutability between products. The theory of markets based on cross-elasticities, however, is not so precise as to allow one to draw

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15. Nicholas Kaldor, "Mrs. Robinson's 'Economics of Imperfect Competition,'" Economica, 1934, pp. 335-341; Robert Triffin, Monopolistic Competition and General Equilibrium Theory (Cambridge: Harvard University Press, 1940).

definite market boundaries for antitrust purposes.<sup>16</sup> Apart from the difficulties of estimating elasticities, it is not clear at what numerical value a product becomes a close enough substitute to be included in the market. In addition, substitutability will depend on the relative prices of alternative products where a large enough increase in price will increase the willingness of consumers and producers to substitute. Further, the length of time of adjustment will influence the cross-elasticities as consumers and alternative producers may not be able to switch quickly to substitute products.

With respect specifically to geographic markets, both supply and demand factors also have to be considered. From a buyer's perspective, the market is that area within which the mobility of consumers will ensure uniform prices, with allowance for transportation costs. The market area from a seller's perspective will usually be larger.<sup>17</sup> Theoretically, the classic market area would be expanded to cover the larger area encompassed by sellers if they could enter easily into an area,<sup>18</sup> even if demanders are limited to relatively small areas. Again, for antitrust

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16. See Corwin D. Edwards, "Economic Concepts and Antitrust Litigation: Evolving Complexities," Antitrust Bulletin 19 (1974), pp. 295-319; Richard A. Posner and Frank H. Easterbrook, Antitrust-Cases, Economic Notes, and Other Materials, 2nd ed., (St. Paul: West Publishing Co., 1981); Phillip Areeda and Donald F. Turner, Antitrust Law: An Analysis of Antitrust Principles and Their Application, (Boston: Little, Brown & Co., 1980); and George J. Stigler, "The Economist and the Problem of Monopoly," American Economic Review 72 (1982), pp. 1-11.

17. George J. Stigler, The Theory of Price, 3rd ed., (New York: Macmillan, 1966) p. 85.

18. Transportation costs can create a wedge between prices in two areas. Prices cannot differ by more than transportation costs if the two areas are integrated. If prices differ by more, the two areas are considered to be separate. See George J. Stigler, Ibid., p. 85.

purposes, a time framework and a price range have to be imposed on the economic market.<sup>19</sup>

In sum, the cross-elasticities between products is important because it helps to measure the ability of a sole seller of one of the products to raise his price without reducing his quantity so much as to lower profits. As a consequence, when calculating market share or concentration to help to assess market power, one should include in the market all products that have high cross-elasticities with respect to the product because it is this group of sellers who might have the power to increase their profits by merging or colluding.<sup>20</sup> At the same time, one cannot include in the market the infinite range of possibilities that in some aspects might be interchangeable and yet still retain any meaning in the market concept.<sup>21</sup> Consequently, a market delineated for antitrust purposes must be defined with respect to a given time frame and price range.

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19. In particular, one must make assumptions about a reasonable time period so as to include those producers that can substitute production in the short run without significant new investment in plant, equipment, and labor. See F.M. Scherer, Industrial Market Structure and Economic Performance, 2nd ed. (Boston: Houghton Mifflin, 1980).

20. Richard A. Posner, Antitrust Law - An Economic Perspective (Chicago: University of Chicago Press, 1976) p. 126.

21. The Supreme Court has recognized that a market should be restricted to those producers that might have a "direct and immediate" effect on competition. See Times-Picayune Publishing Company v. United States, 345 U.S. 594, 612 (1953) and United States v. Philadelphia National Bank, 374 U.S. 321, 357 (1963).

Application of the Market Concept

For public policy purposes, the economic theory of the market probably has been used most frequently in connection with antitrust enforcement.<sup>22</sup> The courts and regulatory agencies have attempted to define the relevant market areas for antitrust cases based on the concept of cross-elasticity although they have not always been consistent in market determination.<sup>23</sup> As noted, cross-elasticities are difficult to measure and interpret, and are relevant to defining antitrust markets only for a given time period and price range.<sup>24</sup> Nevertheless, several cases are cited here to illustrate the practical difficulties encountered and the typical factors considered when defining the relevant market in terms of product and geographic dimensions.

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22. The Department of Justice in its Merger Guidelines has suggested a broad framework for defining markets. Essentially, a market is defined by a group of products and an associated geographic area in which the exercise of market power would be feasible, i.e., where a hypothetical, profit-maximizing firm could impose a "small but significant and nontransitory" increase in price above prevailing or likely future levels. What constitutes a "small but significant and nontransitory" price increase is of course subjective, and the Department of Justice has proposed that in most contexts it will be interpreted as a price increase of 5 percent lasting one year. (See Department of Justice Merger Guidelines, 1984, p. 4. See also Federal Trade Commission 1982 Statement on Horizontal Mergers.)

23. For a comprehensive review of judicial application of the market concept, see ABA, Antitrust Section, Monograph No. 12, Horizontal Mergers: Law and Policy, 1986.

24. For criticisms of cross-elasticity as a basis for market definition, see e.g., Kenneth Boyer, "Industry Boundaries," in T. Calvanit and J. Siegfried eds. Economic Analysis and Antitrust Law (Boston: Little, Brown & Co., 1979); Kenneth Elzinga, "Defining Geographic Market Boundaries," Antitrust Bulletin (1981), pp. 739-746; Gregory Werden, "Market Delineation and the Justice Department's Merger Guidelines," Duke Law Journal (1983), 514.

## 1. Product Markets

The Supreme Court initially recognized the role of cross-elasticities in the well-known cellophane case, where E.I. duPont de Nemours was charged with monopolizing interstate commerce in cellophane in violation of section 2 of the Sherman Act.<sup>25</sup> In defining the relevant product market for determining the control of price and competition, the Supreme Court considered the cross-elasticity of demand between products: "If a slight decrease in the price of cellophane causes a considerable number of customers of other flexible wrappings to switch to cellophane, it would be an indication that a high cross-elasticity of demand exists between them; that the products compete in the same market." The Supreme Court also addressed the issue of defining the market in merger cases under section 7 of the Clayton Act in Brown Shoe and stated that the test of the cellophane case (reasonable interchangeability of use or the cross-elasticity of demand) was applicable in merger cases.<sup>26</sup> Further, the court noted that the cross-elasticity of production facilities might be an important factor in defining a product market.

Based on duPont and Brown Shoe, the courts and regulatory agencies have determined both narrow and broad product markets. For example, a product market might consist of a group or cluster of products where the products are related and are usually produced or sold in a full line by firms in the market. In United States v. Grinnell Corp., the Supreme Court decided that the cluster of services--protection of property

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25. United States v. E.I. duPont de Nemours & Co., 351 U.S. 377 (1956).

26. Brown Shoe Co. v. United States, 370 U.S. 294 (1962).

(burglary and fire) through use of a central service station--constituted a distinct market. Although there were alternative providers of burglary protection and fire protection separately, and without a central service station, these services differed in "utility, efficiency, reliability, responsiveness, and continuity,"<sup>27</sup> and thus did not meet the demand interchangeability test of the Cellophane case. In Grand Union, the Federal Trade Commission alleged that the product market was supermarket sales, excluding convenience store sales.<sup>28</sup> They argued that supermarkets were distinguished from other retail food stores on the basis of amount of dollar sales and physical size. The courts also have found that acute hospital services constitute a cluster of services.<sup>29</sup>

Though the courts have recognized and sought to use the economic concept of a market, they are not always consistent in their product market definitions. For example, in United States v. Aluminum Company of America, the Supreme Court found that the combination of bare and insulated aluminum conductor products constituted a "line of commerce," but that copper conductor, because of its relatively high price, is separable for the purpose of analyzing the competitive effect of the merger.<sup>30</sup> However, in United States v. Continental Can Co., the Supreme Court found that glass containers and metal cans constituted a single

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27. 384 U.S. 563, 1966.

28. The Grand Union Co., 102 F.T.C. 812 (1983).

29. American Medicorp v. Humana, Inc., 445 F. Supp. 589 (E.D. Pa. 1977); American Medical International, Inc., 3 Trade Reg. Rep. (CCH) Para. 22,170 (FTC July 2, 1984); Hospital Corporation of America, 3 Trade Reg. Rep. (CCH) Para. 22,301 (FTC October 25, 1985).

30. 371 U.S. 271, 1964.

market because competition between metal and glass containers was "insistent, continuous, effective and quantity-wise very substantial."<sup>31</sup>

## 2. Geographic Markets

Cross-elasticity, as a legal standard to define geographic markets, was set out in Brown Shoe. Most cases, however, have relied on the standard set in Tampa Electric, which defines geographic markets based on the "market area in which the seller operates and to which buyers can practicably turn for supplies."<sup>32</sup> This standard has focused attention on shipping and purchasing patterns to help define geographic markets.

Geographic markets have been found to be local, regional, and national. In grocery retailing, markets were considered to be Standard Metropolitan Statistical Areas (SMSAs), cities or towns<sup>33</sup> because convenience of location is considered to be essential to effective service.<sup>34</sup> Similarly, in Brown Shoe, the relevant geographic markets for shoe retail are the separate cities and surrounding areas in which the parties sell shoes. The courts also have found that markets are local in hospital care.<sup>35</sup>

31. 378 U.S. 441, 1964.

32. Tampa Electric Co. v. Nashville Coal Co., 365 U.S. 320, 327 (1961).

33. An SMSA is determined by the political subdivisions (normally counties) where at least 15 percent of the labor force commutes to the central core city or town. SMSAs are defined by the Office of Statistical Policy, Department of Commerce.

34. United States v. Von's Grocery Co., 384 U.S. 270, 461 (1966); FTC v. Food Town Stores, Inc., 539 F.2d 1339, 1344-45 (4th Cir. 1976); and The Grand Union Co., 102 F.T.C. 812 (1983).

35. See e.g., United States v. Hospital Affiliates International, Inc., 1980-1981 Trade Cas. (CCH) Para. 63,721 (E.D. La. 1980); Hospital Corporation of America, 3 Trade Reg. Rep. (CCH) Para. 22,301 (FTC October 25, 1985).

On the other hand, the court found in Brown Shoe that shoe manufacturing is a nationwide market because shoes are distributed nationwide. In addition, liquid bleach and other products sold in retail grocery stores are considered to be national markets, and beer is generally considered a regional market, depending on the distribution system.<sup>36</sup>

#### Determination of Banking Markets

In banking, the economic evidence and analysis brought before the regulatory agencies and the Supreme Court in Philadelphia National and subsequent cases have led to the adoption of a product market limited to the cluster of commercial banking services and a local geographic market.<sup>37</sup> The product market had been defined using primarily the concept of the cross-elasticity between the cluster of commercial banking products and financial products offered by alternative financial institutions within a given time period and a plausible range of prices. The geographic market was defined as local based on the Tampa Electric standard, which encompasses that "area where the seller operates and to which buyers can practicably turn for supplies." This, of course, applies

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36. See e.g., United States v. Pabst Brewing Co., 384 U.S. 546 (1966); F. & M. Schaefer Corp. v. C. Schmidt & Sons, 597 F.2d 814 (2d. Cir. 1979); FTC v. Procter & Gamble Co., 386 U.S. 568 (1967).

37. United States v. Philadelphia National Bank, 374 U.S. 321, 359 (1963). See also United States v. Connecticut National Bank, 418 U.S. 656 (1974); United States v. Phillipsburg National Bank & Trust Co., 399 U.S. 350 (1970). For a discussion of the theoretical issues raised in defining banking markets, and in particular geographic markets, see John D. Wolken, "Geographic Market Delineation: A Review of the Literature," Staff Studies, No. 140, Board of Governors of the Federal Reserve System, 1984.



to the vast majority of banks and services that are provided to most consumers and small businesses, rather than to the small number of U.S. global banks that compete in international markets for the business of major corporations in competition with the capital and commercial paper markets.

The courts have indicated recently a willingness to consider arguments that, as a result of changes in the financial sector, the cluster of commercial banking services is not a single product line and banking markets are not local.<sup>38</sup> But as shown by opinions in Connecticut National and more recently, Central State, the courts are not willing to expand the relevant market without empirical evidence.<sup>39</sup>

Recent empirical evidence, however, indicates that the cluster of commercial banking services may still be the relevant product market. Evidence from two recent surveys indicates that small businesses and

38. For a discussion of whether a cluster of services is still the relevant product line, see e.g., Michael Bleier and Robert Eisenbeis, "Commercial Banking as the 'Line of Commerce' and the Role of Thrifts," 98 Banking Law Journal (1981), 374; Bronsteen, "Product Market Definition in Commercial Bank Merger Cases," 30 Antitrust Bulletin (1985), p.677; Alan J. Daskin, "Horizontal Merger Guidelines and the Line of Commerce in Banking," 30 Antitrust Bulletin (1985), p.651. For a discussion of geographic markets, see Langenfeld and McKenzie, "Financial Deregulation and Geographic Market Delineation," 30 Antitrust Bulletin (1985), p.695.

39. United States v. Central State Bank, et al., (1987). In this case, the Department of Justice proposed to treat transactions accounts and small business loans as separate product lines. The District Court found, and the Appeals Court upheld, that the Department failed to factually support its claim that existing circumstances in this case warranted a departure from the definition of banking markets in Philadelphia National.

households tend to cluster their purchases of financial services.<sup>40</sup> Small businesses tend to obtain multiple financial services from the same financial organization from which they obtain checking services, most of which are commercial banks. In contrast, small businesses typically obtain only one financial service from nondepository and nonlocal suppliers. For Japanese households, 69 percent cluster their savings deposits, cash withdrawal, and remittance at one financial institution.<sup>41</sup>

Further empirical evidence on the geographic scope of banking markets suggests that banking markets are still local for most consumers and small businesses. From recent surveys, and in particular, the national survey of small businesses, the data indicate that the vast majority of small businesses obtain their financing from local financial institutions, primarily commercial banks.<sup>42</sup> The survey of Japanese households indicated that 80 percent listed "geographic proximity," as the first reason for selecting their primary financial institution.<sup>43</sup> Other empirical studies that indicate differences in deposit and loan rates across MSAs, and non-MSA counties, or cities, also suggest that banking

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40. See Gregory Elliehausen and John Wolken, "Banking Markets and the Use of Financial Services by Small and Medium-Sized Businesses," Staff Studies 160 (Federal Reserve Board, September 1990), p. 15.

41. See Akira Kurukawa, "Retail Banking and Consumer Choice in Japan," mimeo (Institute for Posts and Telecommunications Policy, March 1990), esp. pp. 31 and 44.

42. Elliehausen and Wolken, *op. cit.*, pp. 16-19. In addition, 10 small surveys conducted by Reserve Banks during 1988-1990 in connection with BHC bank acquisition applications suggest that banking matters are local.

43. Furukawa, *op. cit.*, pp. 31 and 44.

markets are local.<sup>44</sup>

### Conclusion

Cross-elasticities of demand and supply provide a theoretical foundation for market definition. In practice, however, defining a market can be difficult. Market definitions adopted by the courts and regulatory agencies in antitrust cases have not always been consistent and illustrate the difficulties in market definition. Numerous court decisions have held that the relevant banking market is a cluster of banking services in a local market area where consumers and small businesses obtain their financial services. The finding of a local geographic market for banking is not unique in that for nonbanking industries, geographic markets have also been defined as local. In any event, recent survey evidence indicates that the relevant banking market remains a cluster of banking services in a local market area. This does not apply to the global competition faced by a few very large U.S. banks who face competition from foreign banks, commercial paper, and securities markets in their dealings with large, often international corporations.

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44. See Allen N. Berger and Timothy H. Hannan, "The Price-Concentration Relationship in Banking," Review of Economics and Statistics (May 1989), pp. 291-99; Timothy H. Hannan, "Bank Commercial Loan Rates and the Market for Commercial Loans," Journal of Banking and Finance 15 (February 1991), pp.133-149; Stephen A. Rhoades, "Local v. National Banking Markets: Evidence from an Analysis of Mortgage Loan Rates in 20 Cities," mimeo (Federal Reserve Board, 1990); and Timothy H. Hannan, "The Functional Relationship between Prices and Concentration: The case of the Banking Industry," mimeo (Federal Reserve Board, 1991).

### III. Assessing Competition: The Role of Market Structure

The economic rationale for focusing on market structure (whether local, regional or national in scope) in assessing competition stems from a lengthy history of theoretical and empirical work.

#### Theory

Industrial organization, the branch of applied microeconomics that seeks to explain the behavior of firms in a market, relies principally on economic models that fall within a broad framework usually referred to as the "structure-conduct-performance paradigm." This framework, in which market structure is the key element, was developed out of theoretical work by Chamberlin<sup>45</sup> and others in the 1930s and was first advanced by Mason.<sup>46</sup> Bain was the first to undertake significant development and testing of the paradigm.<sup>47</sup>

Despite its name, the structure-conduct-performance (S-C-P) paradigm is usually presented as having four components connected by a causal relationship.<sup>48</sup> The basic conditions underlying an industry

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45. E. H. Chamberlin, The Theory of Monopolistic Competition (Cambridge: Harvard University Press, 1933) (8th ed., 1962).

46. Edward S. Mason, "Price and Production Policies of Large-Scale Enterprise," American Economic Review, Vol. 29, No. 1, Pt.2 Supplement (March 1939), pp. 61-74.

47. Joe S. Bain, Barriers to New Competition (Cambridge: Harvard University Press, 1956); and Industrial Organization, 2nd ed. (New York: John Wiley & Sons, 1968).

48. For textbook explanations of the S-C-P model, see F. M. Scherer, Industrial Market Structure and Economic Performance, 2nd ed. (Chicago: Rand McNally), 1980, p. 4; Douglas F. Greer, Business, Government, and Society (New York: Macmillan, 1983), p. 15; Michael Waterson, Economic Theory of the Industry (Cambridge: Cambridge University Press, 1984), p. 3; and William G. Shepherd, The Treatment of Market Power (New York: Columbia University Press, 1975), p. 12.

affect market structure. Market structure affects the conduct of firms in the market and conduct in turn influences firm performance. Basic market conditions include both the level of demand and the shape of the demand curve ("tastes and preferences") and the shape of the supply curve ("technology" or "costs"). Basic conditions also include any legal constraints on firm actions. Market structure refers to the number and size distribution of firms in the market (the "actual" competitors) and the ease or difficulty of entry into the market by nonincumbent firms (the "potential" competitors). Conduct includes the degree to which firms in the market compete or collude with each other and the choices of competitive strategies by firms. Performance is typically measured by the level of profits or prices, by the rate of firm growth, or by other variables thought to reflect firm goals.

From the initial work of Mason it has been recognized that the S-C-P framework presents a simplified view of how markets actually work. In particular, it has been recognized that the one-way flow of causation described above does not always hold. But economists differ on the importance of the feedback effects of firm performance on conduct and of both performance and conduct on market structure. Some economists think that the feedback effects are sufficiently weak that it is possible to analyze firm performance while treating market structure as if it were exogenous. Other economists think that the feedback effects are strong enough that any analysis that fails to treat both firm performance and market structure as endogenous features determined by basic market

conditions is likely to yield incorrect conclusions.<sup>49</sup> Empirical evidence on the importance of feedback effects will be discussed below.

The use of market structure in analyzing and assessing competition has a solid theoretical foundation. There have been significant developments in the field of economics relevant to such matters (Industrial Organization) in recent years. However, to date, much of this work has been theoretical and has yet to provide much that is empirically supportable or refutable that may be directly applied in antitrust policy toward mergers.<sup>50</sup> Since theory alone has generally been viewed by the courts as inadequate for supporting public policy, a review of relevant empirical evidence is appropriate.

#### Empirical Evidence

Empirical estimation of the S-C-P model has generally found that higher levels of market concentration are associated with higher levels of prices and profits. However, because of measurement problems, the

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49. For a statement of this view, see Almarin Phillips, "A Critique of Empirical Studies of Relations between Market Structure and Profitability," Journal of Industrial Economics (June 1976), pp. 241-249 and for a theoretical treatment see William J. Baumol, John C. Panzar and Robert D. Willig, Contestable Markets and the Theory of Industry Structure (New York: Harcourt Brace Jovanovich, 1982).

50. For a rather complete and technical overview, see Richard Schmalensee and Robert D. Willig, eds., The Handbook of Industrial Organization, 2 vols. (New York: North Holland, 1989). For very interesting reviews of this work, see Franklin M. Fisher, "Organizing Industrial Organization: Reflections on The Handbook of Industrial Organization," Brookings Papers: Microeconomics 1991 (Washington, D.C.: Brookings Institution, 1991) pp.201-255; Alvin K. Klevorick, "Directions and Trends in Industrial Organization: A Review Essay on The Handbook of Industrial Organization," Ibid., pp.241-264, and Robert H. Porter, "A Review Essay on Handbook of Industrial Organization," Journal of Economic Literature (June 1991), pp.553-572.

reliability and interpretation of these results have been subject to question.<sup>51</sup>

As noted above, market structure refers to both the actual competitors in a market and the ease with which potential competitors can enter the market. In practice, actual competition is much easier to measure than the threat of potential entry. The number and size distribution of firms (market concentration) is typically measured by either the Herfindahl-Hirschman Index, which is the sum of the squares of the market shares of all firms in the market, or by an n-firm concentration ratio, which sums the market shares of the n largest firms in the market.<sup>52</sup> Because the number of potential entrants, their effects on pricing by the incumbent firms in a market and the probability that they will enter a market are extremely difficult to gauge, potential competition is normally measured by some indirect method. For example, the difficulty of entering a market may be measured by the average size of the firms in that market since this average gives some idea of the amount of capital that must be raised to enter the market and the scale of operations that must be achieved to operate efficiently.

Conduct is even more difficult to measure than is potential competition. The degree to which firms compete with each other is usually

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51. The inability to accurately measure basic tastes and technology (e.g., demand elasticities) was a major reason for the development of the S-C-P model (see Mason), op. cit. While structure, conduct and performance are easier to quantify than underlying market conditions, their measurement poses substantial difficulties.

52. The four-firm concentration ratio is the most commonly used ratio in the industrial sector. In banking, the three-firm concentration ratio is the standard.

not directly observable or quantifiable. For this reason, economists have tended to focus on the direct linkages between structure and competition.<sup>53</sup>

Firm performance can be measured in terms of any goal to which the firms in a market are presumed to aspire. Since most economic theory assumes that firms are profit maximizers, profits is a logical measure of firm performance. However, there are many reasons why accounting profits may be poor measures of the economic profits to which theory refers.<sup>54</sup> Some have argued that performance can be measured more accurately by breaking profit into its component parts of revenues (price times quantity) and costs. Price is then used as the performance measure and costs are controlled for in the estimation procedure.

The S-C-P model has typically been tested by estimating a simple regression with the performance measure (e.g., profits) as the dependent variable and measures of market structure (e.g., the Herfindahl Index) and conduct as explanatory variables. Such an estimation method assumes that

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53. Measures of product differentiation, advertising and research and development can give some idea of differences in conduct across firms. When they are important elements of firm behavior, these variables are often included along with structural variables in empirical models.

54. Some go so far as to say that accounting profits are worthless as measures of economic profits. See George J. Benston, "The Validity of Profit-Structure Studies with Particular Reference to the FTC's Line of Business Data," American Economic Review, Vol. 75, No. 1 (March 1985), pp. 37-67 and Franklin M. Fisher and John J. McGowen, "On the Misuse of Accounting Rates of Return to Infer Monopoly Profits," American Economic Review, Vol. 73, No. 1 (March 1983), pp. 82-97. For critical comments on these papers from a number of economists defending the use of accounting data, see American Economic Review, Vol. 77, No. 1 (March 1987), pp. 205-217 and American Economic Review, Vol. 74, No. 3 (June 1984), pp. 492-508, respectively.



market structure and conduct can be treated as exogenous, i.e., that feedback effects from performance on conduct and market structure are not important and can be ignored. Results from these regressions generally show that higher market concentration is associated with higher profits and higher prices. Measures of entry barriers are also positively correlated with higher prices and profits.<sup>55</sup>

The results of these studies have been given two explanations. The "traditional" explanation is that greater market concentration gives firms greater market power, so that by either explicit or implicit collusion they can raise prices and profits above competitive levels. Thus, higher levels of concentration are thought to cause higher profits. A "revisionist" explanation, first put forward by Demsetz in 1973, argues that the observed concentration-profits relationship is not a causal one. Demsetz argues that more efficient firms tend to grow larger than other firms, so that in markets where firms differ in efficiency some (efficient) firms will have large market shares and measures of market concentration will be high. The concentration-profits relationship is therefore the result of efficient firms out-competing inefficient firms and not the result of market power being used to generate monopoly profits.<sup>56</sup>

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55. For reviews of these studies, see Scherer, op. cit., or Leonard W. Weiss, "The Concentration-Profits Relationship and Antitrust," in H. J. Goldschmid, H. M. Mann and J. F. Weston, eds., Industrial Concentration: The New Learning (Boston: Little, Brown and Co., 1974).

56. Harold Demsetz, "Two Systems of Belief about Monopoly," in Goldschmid, Mann and Weston, Ibid.

Two directions in recent empirical work have tried to distinguish between the traditional and revisionist hypotheses. The first direction uses price data to distinguish between the hypotheses, since the traditional hypothesis predicts a positive correlation between prices and market concentration, while the revisionist hypothesis predicts a negative correlation. Such studies tend to support the traditional view over the revisionist explanation.<sup>57</sup>

The second direction attempts to account for the endogeneity of conduct and structure variables implied by the feedback effects through the estimation of simultaneous-equations models. Studies that simultaneously estimate the determinants of profits and the determinants of variables measuring firm conduct and market structure have generally found that results are qualitatively the same as those for the simple single-equation models described above.<sup>58</sup>

Estimation of the S-C-P model for the U.S. banking industry has found that a statistically significant and positive relationship exists

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57. See Allen N. Berger and Timothy H. Hannan, "The Price-Concentration Relationship in Banking," Review of Economics and Statistics, Vol. 71, No. 2 (May 1989), pp. 291-299; Timothy H. Hannan, "Bank Commercial Loan Rates and the Market for Commercial Loans," unpublished paper (1990); and Stephen A. Rhoades, "Local v. National Banking Markets: Evidence from an Analysis of Mortgage Loan Rates in 20 Cities," mimeo (1990).

58. See Jeffrey A. Clark, "Single-Equation, Multiple-Regression Methodology: Is It an Appropriate Methodology for the Estimation of the Structure-Performance Relationship in Banking?" Journal of Monetary Economics, Vol. 18 (November 1986), pp. 295-312.

between market concentration and profitability.<sup>59</sup> These studies focus on the local banking markets in which most U.S. banks compete rather than on the global banking markets in which the very large banks compete against foreign banks, the commercial paper market, securities firms, and so forth. Moreover, because virtually all research on economies of scale in banking has found that such economies exist only for small banks, this relationship is less likely to be due to efficiency differences than in other industries.<sup>60</sup> However, the magnitude of the effect of concentration on profits seems to be smaller in banking than in many other industries.<sup>61</sup> Studies of bank prices find a positive and economically meaningful relationship between prices and market concentration.<sup>62</sup>

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59. Most banking S-C-P studies have controlled for differences in potential competition by taking into account differences in the legal ability to expand geographically by branching or bank holding companies across states. A few studies have used legal branching restrictions to try to measure directly the number of potential entrants into banking markets. See Timothy Hannan, "Limit Pricing and the Banking Industry," Journal of Money, Credit and Banking, Vol. 11, No. 4 (November 1979), pp. 438-446.

60. For a general review of the literature on scale economies in banking, see R. Alton Gilbert, "Bank Market Structure and Competition: A Survey," Journal of Money, Credit and Banking, Vol. 16, No. 4, Pt. 2 (November 1984), pp. 617-645. For more recent reviews of more sophisticated econometric studies, see Allen N. Berger, Gerald A. Hanweck and David B. Humphrey, "Competitive Viability in Banking: Scale, Scope, and Product Mix Economies," Journal of Monetary Economics, Vol. 20, No. 4 (December 1987), pp. 501-520; and Allen N. Berger and David B. Humphrey, "The Dominance of Inefficiencies over Scale and Product Mix Economies in Banking," Finance and Economics Discussion Series No. 107, Board of Governors of the Federal Reserve System, January 1990.

61. For reviews of S-C-P studies in banking, see Stephen A. Rhoades, "Structure-Performance Studies in Banking: An Updated Summary and Evaluation," Staff Study No. 119, Board of Governors of the Federal Reserve System, August 1982, and R. Alton Gilbert, op. cit.

62. See papers cited in footnote 57.

### Public Policy

Empirical results from estimation of the S-C-P model have generally been interpreted as indicative of a significant causal relationship from greater market concentration to higher firm profits and prices. Antitrust policy has relied heavily on this interpretation in its attempts to prevent the monopolization of U.S. markets. Current Department of Justice merger guidelines limit increases in market concentration due to mergers. While the guidelines recognize that ease of entry and other factors affect the degree of competition within a market, the core of the guidelines is a limit on the level and increase in the Herfindahl Index that is allowed without triggering a Justice Department examination and possible legal challenge to the merger. The numerical limits chosen are admittedly somewhat arbitrary but they serve the purpose of "reduc[ing] the uncertainty associated with enforcement of antitrust laws in this area."<sup>63</sup> The guidelines are not adhered to rigidly; if entry conditions or other factors indicate that a merger that violates the numerical limits on concentration would not be anticompetitive, an exception to the guidelines can be made. For example, in 1984 the Justice Department relaxed the numerical rules for banking mergers in recognition of the increased competition banks are facing from other providers of financial services. It is notable, however, that a recent Court of Appeals decision highlighted the importance of having solid empirical

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63. U.S. Department of Justice Merger Guidelines, June 14, 1982, p. 1.

evidence before altering significantly the analytical framework for assessing competition in banking.<sup>64</sup>

### Conclusion

The focus on market structure in assessing competition stems from a large body of theoretical and empirical research. Despite a continuing debate over the causes of the relationship between market structure and firm performance, antitrust policy has relied heavily on limiting market concentration in its attempts to prevent the monopolization of U.S. markets. Research on the banking industry generally supports the view that more concentrated local banking markets are less competitive than less concentrated markets. There are, of course, a few very large global U.S. banks that face competition on a global scale for very large corporate customers, to which these research findings for local U.S. markets do not directly apply.

#### IV. Overall Conclusion

From this overview, it is clear that there is an extensive legal and economic foundation for the Board's assessment of the likely competitive effects of bank mergers and acquisitions. The analysis conducted in individual merger cases is guided by this foundation in

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64. In United States v. Central State Bank (1987), the Department of Justice was defeated in its attempt to change the definition of banking product markets. The Supreme Court declined to hear an appeal of this case.

developing relevant data from a variety of sources including surveys, interviews, on-site investigations, and various databases.

## APPENDIX C

### STUDIES RELEVANT TO THE IMPACT OF BANK MERGERS

#### I. Bank Prices and Profits

Studies of the impact of mergers on the prices charged by banks and the profits earned by them may be usefully divided into two types: those that do not look specifically at the actual effects of specific mergers and those that do. Of all the studies conducted within the Federal Reserve System that are relevant to this issue, the vast majority have been designed to draw inferences about the possible effects of mergers in a way that does not look specifically at the effects of individual past mergers. A few studies, however, have looked at the change in bank prices and profits resulting from specific, individual mergers. Each of these two types of studies are reviewed in turn.

#### A. Studies that do not Focus on Individual Bank Mergers

Studies of the relationship between bank profitability and banking market concentration represent the oldest type of study having potential relevance to the impact of bank mergers. Typically, such studies define local banking markets as Metropolitan Statistical Areas, counties, or some other geographic entity chosen to represent the area in which banks are presumed to compete for customers of the more locally oriented bank products, such as small business loans and certain types of deposits. Measures of concentration are calculated for each market thus defined. Commonly used concentration measures are the market deposit share of the largest three banks in the market and the Herfindahl index, defined as the sum of the squared value of each market share in the market. Statistical tests are then performed

to determine whether banks operating in areas that register higher levels of concentration also exhibit higher levels of profitability, controlling for other things that may also influence firm profitability.

One review of this very large literature was done by Stephen Rhoades of the Board's staff.<sup>1</sup> Mr. Rhoades concludes that most of these studies find that banks operating in more concentrated markets enjoy on average higher levels of profitability. These findings are consistent with the argument that banks in highly concentrated markets charge higher loan rates and offer lower deposit rates, suggesting in turn that mergers resulting in high levels of market concentration can adversely affect bank customers. Many have argued, however, that these findings simply reflect the greater efficiency and lower costs of the largest firms in concentrated markets rather than noncompetitive behavior. Because of this fundamental disagreement, there is little consensus concerning the meaning of this type of study for merger policy.

Another type of study with relevance to merger policy examines the relationship between market concentration and bank prices, including various types of loan rates charged by banks and different deposit rates offered by them. Typically, these studies define local banking markets and calculate measures of market concentration in much the same way as do the studies that focus on bank profitability. Their primary difference is that instead of determining whether banks in more concentrated markets exhibit greater profitability, they seek to determine whether such banks charge loan rates and offer deposit rates that are less attractive to bank

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1. Stephen A. Rhoades, "Structure-Performance Studies in Banking: An Updated Summary and Evaluation," Staff Study #119, Board of Governors of the Federal Reserve System, 1982.



customers. Such studies have been made possible in part by Board surveys that provide information on bank loan and deposit rates. A good review of these "price-concentration" studies in banking, as well as similar studies applying to other industries, has been presented by Leonard Weiss.<sup>2</sup> A number of studies of this type have been conducted recently by members of the Board's staff.<sup>3</sup> All find some evidence suggesting that if banking markets become highly concentrated, bank customers tend to pay higher loan rates and/or receive lower deposit rates than do bank customers in less concentrated markets. These price studies tend to be clearer in terms of their implications for merger policy than are the profit studies, since they suggest with less ambiguity that mergers resulting in relatively high levels of banking market concentration can adversely affect bank customers.

#### B. Studies that Focus on Individual Bank Mergers

Whether or not specific past mergers have resulted in higher loan rates, lower deposit rates, or in other ways disadvantaged banking customers is a different question. Banking organizations must pass regulatory scrutiny before they are allowed to merge, and mergers are typically not approved if they are judged likely to have a

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2. Leonard W. Weiss, ed., Concentration and Price (MIT Press: Cambridge), 1989.

3. See, for example, Allen N. Berger and Timothy H. Hannan, "The Price-Concentration Relationship in Banking," Review of Economics and Statistics 71 (May 1989), pp. 291-99; Timothy H. Hannan, "Bank Commercial Loan Markets and the Role of Market Structure: Evidence from Surveys of Commercial Lending," Journal of Banking and Finance 15 (February 1991), pp. 133-49; Allen N. Berger and Timothy H. Hannan, "The Price-Concentration Relationship in Banking: Reply," Review of Economics and Statistics (forthcoming); Stephen A. Rhoades, "Local Vs. National Banking Markets: Evidence from an Analysis of Mortgage Loan Rates in 20 Cities," (mimeo) Board of Governors of the Federal Reserve System, 1991; and Timothy H. Hannan, "The Structural Relationship Between Prices and Market Concentration: The Case of the Banking Industry," (mimeo), Board of Governors of the Federal Reserve System, 1991.

significantly adverse effect on competition. Thus, studies of the competitive impact of individual bank mergers in essence focus on the issue of whether regulatory authorities have been correct in their assessments.

Only a few studies have looked either directly or indirectly at the pricing practices of banks before and after mergers. The only study to look directly at the pricing effects of a large merger was reported in 1987 by Frederick Furlong.<sup>4</sup> This study examined the rates offered for Money Market Deposit Accounts and six-month time deposit accounts of less than \$100,000 both before and after the merger between Wells Fargo and Crocker National. After accounting for the relationship between these rates and short-term money market rates over time, the study finds no general tendency on the part of the merged firm to offer depositors less attractive rates after the merger than were offered before the merger.

Other studies have looked indirectly at the effect of mergers on bank pricing by examining the reaction in a bank's stock price brought about by the announcement of a merger involving the bank's competitors. If observed mergers allow merged entities to raise loan rates or lower deposit rates, the reasoning goes, then banks competing in the same market should also benefit from the price changes. A finding of positive abnormal returns in the stock of banks competing with merger participants occurring at the time of the announcement would represent a finding consistent with this hypothesis. In general, those studies that have searched for such abnormal returns have failed to find them, thus providing no evidence of

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4. Frederick T. Furlong, "Assessing Bank Antitrust Standards," Weekly Letter of the Federal Reserve Bank of San Francisco, May 15, 1987.

anticompetitive pricing brought about by past mergers.<sup>5</sup>

## II. Costs and Efficiency

Another issue relevant to the effect of mergers concerns the prospect that through merger, greater bank efficiency can be achieved, thus yielding a healthier and potentially more competitive banking firm. As in the case of the effect of mergers on bank prices and profits, studies that examine potential changes in bank costs or efficiency may be divided into studies that do and do not look at the effect of specific past mergers.

### A. Studies that do not Focus on Individual Bank Mergers

A great deal of research both within and outside of the Federal Reserve System has been devoted to the question of how the costs incurred by banks vary with bank size. While not focusing on individual mergers per se, this line of research can indicate whether mergers, which make larger banks out of smaller ones, can be expected to lower costs as a result of "economies of scale" or to raise costs as a result of "diseconomies of scale." These studies seek to answer this question by examining how the costs incurred by banks vary with bank size, controlling statistically for input prices and other potential determinants of bank costs. Some of the more recent studies of this type conducted within the Federal Reserve System include a study by Berger, Hanweck, and Humphrey in 1987 and a study by Berger

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5. See Christopher M. James and Peggy Wier, "Returns to Acquirers and Competition in the Acquisition Market: The Case of Banking," Journal of Political Economy 95 (May 1987), pp. 355-70, and Frederick T. Furlong, *op. cit.*

and Humphrey in 1990.<sup>6</sup> The most recent review of this large literature has appeared in the Economic Review of the Federal Reserve Bank of Richmond.<sup>7</sup> In general, these studies have not found evidence of a significant cost advantage on the part of larger banks. They find that scale economies, if they exist, are very small, and most studies do not show such scale economies to exist beyond a small to medium sized bank. Thus, this line of research has not provided strong evidence suggesting that large mergers in general can be counted on to achieve substantial cost savings.

In a somewhat different approach, results of the 1990 study by Berger and Humphrey, referred to above, suggest that banks may differ considerably in their ability to control costs and that such differences are far more important than those differences that might be attributed to differences in institution size. It thus appears that substantial cost savings are possible for many banking organizations, regardless of size.

#### B. Studies that Focus on Individual Bank Mergers

In the past few years, a number of studies have attempted to determine whether individual past mergers have resulted in significant cost savings. While such studies typically focus on the change in noninterest expenses before and after the merger, changes in profitability and market share are also sometimes examined. In some cases, before and after changes are compared to the same changes

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6. Allen N. Berger, Gerald A. Hanweck, and David B. Humphrey, "Competitive Viability in Banking: Scale, Scope, and Product Mix Economies," Journal of Monetary Economics 20 (December 1987), pp. 501-20, and Allen N. Berger and David B. Humphrey, "The Dominance of Inefficiencies Over Scale and Product Mix Economies in Banking," Journal of Monetary Economics 28 (August 1991), pp. 117-48.

7. See David B. Humphrey, "Why do Estimates of Bank Scale Economies Differ?" Economic Review, Federal Reserve Bank of Richmond, September/October 1990.

observed concurrently in banking organizations that did not engage in mergers. In assessing the results of these studies, it is useful to make a distinction between cost savings that are achieved simply by shrinking the size of the resulting firm and cost savings that lower costs attributable to a firm of a given size. A number of studies of recent mergers have found evidence that the combined entities after merger were reduced in size relative to the size before merger of the two merging organizations.<sup>8</sup> But with one or two exceptions, most studies have not found strong evidence of a reduction in costs after accounting for this size effect.<sup>9</sup>

As noted above, however, it has also been found that banking organizations vary considerably in terms of their ability to control costs, no matter what their size. This implies that for most banking organizations, much can be done to reduce costs and create a more healthy banking organization. Estimates made by researchers at the Federal Reserve Board indicate that if the lowest cost banks in the country were to acquire the highest cost banks and if costs of the acquired banking organizations were subsequently reduced to the level of the acquiring banks, then annual cost savings of \$17 billion would

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8. See, for example, Ethan M. Heisler, "Savings Resulting from the Acquisition of Irving Bank Corp. by The Bank of New York Co., Inc." Federal Reserve Bank of New York, September 18, 1990; Donald T. Savage, "Mergers, Branch Closings, and Cost savings," (mimeo) Board of Governors of the Federal Reserve System, May 1991; and Dwight Crane and Jane C. Linder, "Bank Mergers: Integration and Profitability," (mimeo) Harvard Graduate School of Business, 1991. Investigations of the merger between Crocker National and Wells Fargo also indicate a reduction in size after the merger.

9. See, for example, Donald Savage, op. cit.; Dwight Crane and Jane C. Linder, op. cit.; and Stephen A. Rhoades, "Billion Dollar Bank Acquisitions: A Note on the Performance Effects," (mimeo) Board of Governors of the Federal Reserve System, 1990. More recent work at the Board has also failed to find, in the case of a number of large mergers, a reduction in costs after accounting for the size effect. The study by Ethan M. Heisler (op. cit.) of the merger between Irving Bank Corp. and The Bank of New York did find evidence of a reduction in noninterest expenses beyond that attributable to the shrinkage of the combined firm after the acquisition.

result. However, some of these cost differences may simply reflect differences in the level of services, and as noted, evidence to date suggests that past mergers have not in general yielded significant cost savings beyond that obtained through shrinking the size of the banking organization.