

# Banking Markets in a Decade of Mergers: A Preliminary Examination of Five North Carolina Markets

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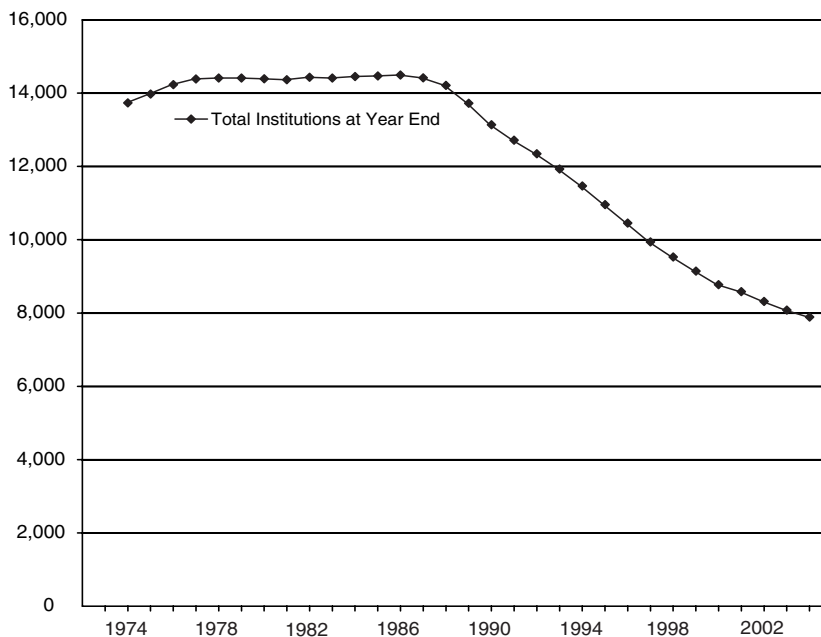
The decade of the 1990s was a period of dramatic consolidation in the banking industry. From 1990 to 2000, the number of banking institutions in the United States fell from 12,212 to 8,252. During this period, the percent of all banking assets held by the largest 1 percent of all banks rose from 54 percent to 70 percent. This consolidation was partly facilitated by the 1994 legislation allowing full interstate branching. Further legislation in 1999 made consolidation across the broader financial services industry easier by loosening restrictions on the combination of commercial and investment banking activities in one company.

On its face, the consolidation of the 1990s appears to be part of a longer wave that began in the mid-1980s. The total number of banks in the United States was notably stable at around 14,000 for a number of years prior to 1986, then began a steady decline. The striking difference in trends is captured in Figure 1.<sup>1</sup> Unsurprisingly, this sustained decline in the number of banks is associated with an historically high level of merger activity, as seen in Figure 2. These figures present a picture of structural change in the banking industry stretching over a period of close to two decades. There is a distinct difference,

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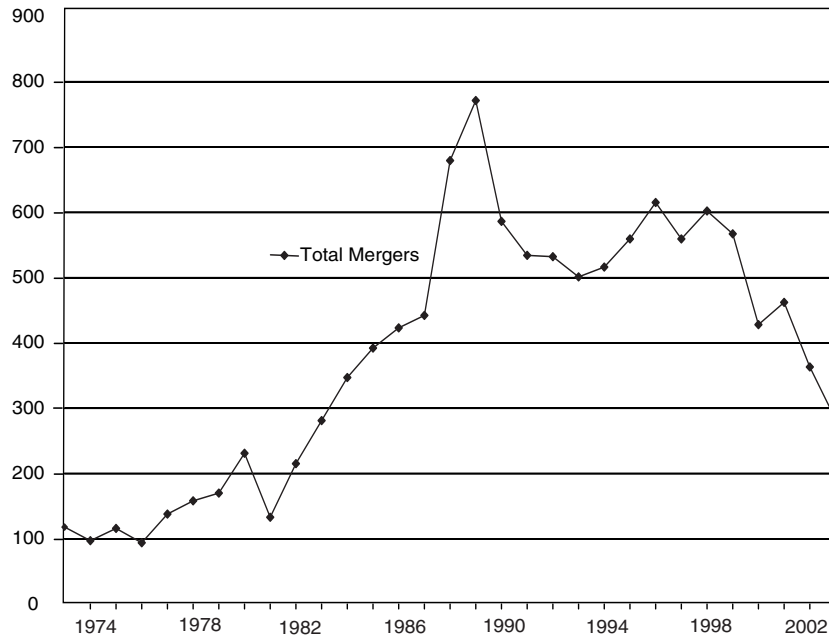
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<sup>1</sup>The same figure appears in Ennis (2004), as does a more detailed description of the aggregate trends in failures, mergers, and entry of new banks.

**Figure 1 Number of Banks in the United States, 1972–2002**

however, between the earlier and later parts of this period. In the 1980s and through the recession of the early 1990s, the banking industry was in a period of crisis, with many undercapitalized or insolvent institutions. Consequently, there was a peak in the number of bank failures in 1988, and much of the merger activity represented the acquisition of weak banks by stronger ones. In contrast to the earlier part of the period, the banking system as a whole has been well capitalized since the mid-1990s, and bank failures have been few in number. Further evidence for differences between the two periods can be seen in the behavior of the concentration of banking assets. As noted above, the percent of assets held by the top 1 percent of banks rose significantly in the 1990s. Before 1990, however, this measure of aggregate concentration changed very little.

Given the difference in the overall condition of the banking industry, the forces driving merger decisions may have been different around the two peaks in merger activity in Figure 2. In the earlier part of the period, both acquirers' strategic considerations and the needs associated with the resolution of weak institutions were important in determining what mergers occurred. In the later part of the period, acquirers' interests were probably predominant. One such consideration is the desire of an acquiring institution to establish or solidify

**Figure 2 Bank Mergers, 1972–2002**

its position in particular product market segments. That is, a bank with a large share of some of the markets in which it participates might seek to enlarge its share through acquisitions, so as to exercise more control over market prices and enjoy the enhanced profits that come with such market power. Alternatively, mergers might be simply a means of transferring banking resources from less to more efficient users in response to changes in firm-specific or marketwide conditions. This article explores the effect of the merger wave of the 1990s on product markets by examining the evolution of market structure in metropolitan retail banking markets over this period. Specifically, this article explores the changes in market structures in five North Carolina metropolitan areas and asks whether these changes shed light on alternative views of the forces driving mergers.

## 1. LOCAL BANKING MARKETS

Banks participate in many distinct markets. They provide credit to households and businesses, and credit markets can be further segmented along such lines as the type of household loan (e.g., credit card balances or home-purchase mortgage) or the size of business borrower. Banks also provide deposit

services and the payment services that come with the provision of checkable deposits. Finally, banks provide an increasing array of other financial services, either directly or through holding company affiliates.

Antitrust policy toward bank mergers has long been based on the presumption that bank customers look mainly to nearby institutions for at least some of the financial services they purchase. In particular, attention has centered on services provided to households and small businesses as being most likely to be local in nature. While technological innovations and the development of specialized institutions for some products has certainly made many markets less geographically limited, recent studies suggest that local institutions remain important as providers of certain core banking products to these customers. Such products include consumer and business checkable deposits and unsecured line of credit lending to small businesses. Kwast et al. (1997), in an analysis of the Federal Reserve's Survey of Consumer Finances and National Survey of Small Business Finances, found that these types of customers tend to have a primary banking relationship with a local institution. Examining interest rates on retail deposit accounts, a number of studies, including Heitfield and Prager (2004), find evidence of market segmentation in the form of rate differentials at the level of metropolitan areas. Further, they find such differences as recently as 1999, suggesting that markets for such deposit services continue to be local.

The Federal Reserve's role in bank merger policy, and that of the other federal bank regulatory agencies, derives most significantly from the Bank Merger Act, passed in 1960 and amended in 1966. Under this authority, the Fed examines proposed mergers for possible effects on the competitive structure and behavior of banking markets. Consistent with the evidence on the local nature of markets for some retail banking services, this analysis takes place primarily at the level of local markets. In particular, when there is geographic overlap between the merging institutions' retail operations, the Fed assesses the effects of the merger on the degree of concentration in local markets. For the purposes of this analysis, the Reserve Banks define banking markets in their districts. Many of the defined markets coincide with the metropolitan areas that are used for other statistical purposes.<sup>2</sup> In rural areas, market definitions attempt to link areas according to where people engage in a range of economic activities. Such factors as commuting patterns and the location of major shopping and health care facilities are important for defining markets beyond the well-established metropolitan areas.

The approach to merger policy adopted by the banking regulatory agencies was originally based on the view that banking could be defined as a bundle of services including deposit services and credit to both households and busi-

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<sup>2</sup> The Federal Reserve Bank of Richmond's metropolitan area markets are based on the Rand-McNally designations of "regional metropolitan areas," or RMAs.

nesses. The notion of a fixed bundle of services suggested that the relative sizes of two banks would be fairly consistent across services. Hence, a measure of local market concentration in one service, such as deposits, could be used as a broader measure of concentration in the entire bundle of services. Changes in financial services markets, especially in services to large businesses and in some consumer credit products, have weakened the connections among the various services in the traditional bundle. Still, the continuing local nature of markets for retail deposits and small business lending suggests that the approach of assessing concentration in local deposits continues to have some validity in measuring concentration and the possible competitive effects of mergers.<sup>3</sup>

In North Carolina there are 19 banking markets that correspond to metropolitan areas, and 48 rural markets. These markets do not cover the entire state, since a rural area can remain undefined until there is a merger case involving banks in the area. The metropolitan markets range in size from Goldsboro, with a population just over 113,000, to Charlotte, with a population of over 1.3 million.<sup>4</sup> The five markets examined in this article (and their 2000 metropolitan area populations) are Raleigh (797,071), Greensboro (643,430), Durham (426,793), Wilmington (274,478), and Rocky Mount (143,026).

## 2. CONCENTRATION AND PRICES

Merger policy is based on the presumption that there is a link between market concentration and the behavior of market prices. The more concentrated a market becomes, it is feared, the more likely are market prices to deviate from the competitive ideal and perhaps approach the pricing of a monopolized market. This concern is founded both on the theory of price-setting in imperfectly competitive markets and on a long history of empirical studies of the relationship between market concentration and prices charged or profits earned by sellers. In banking, a number of studies have found a negative correlation between concentration in local markets and the interest rates paid on retail deposit accounts.

Concentration is typically measured by the Herfindahl-Hirschman Index (HHI), which is the sum of the squares of sellers' market shares. That is, in a market with  $N$  sellers, with seller  $i$ 's share of market sales (or deposits, as market shares are typically measured in banking) denoted by  $s_i$ , this concentration

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<sup>3</sup> Gilbert and Zaretsky (2003) provide a history and an assessment of the underlying assumptions in the approach to merger policy in banking.

<sup>4</sup> Metropolitan area population numbers are from the 2000 census.

measure is

$$\text{HHI} = \sum_{i=1}^N (100s_i)^2.$$

The greatest possible HHI, for a fully monopolized market, is 10,000, while a market consisting of 100 equal-sized sellers would have an HHI of one. Compared to other potential measures of concentration, for instance, the total share of the top four firms in the market, the HHI has the advantage of being sensitive to both the number of firms and the inequality of market shares among the active firms.

The observation that deposit rates paid to retail customers are negatively correlated with local market concentration is consistent with the hypothesis that mergers are motivated by the desire of acquirers to gain market share and pricing power. Analogously, a large literature finds that, across many industries, seller concentration is positively correlated with prices and seller profits.<sup>5</sup> These same observations, however, are also consistent with a very different theory of the determination of market structure. A critique of the market-power-based hypothesis, originating with Demsetz (1973), argues that the observed correlations between concentration and profits or prices could emerge even if no firms ever exercised any market power. Consider two distinct markets with similar demand conditions. In each market, sellers and potential entrants have access to a production technology with decreasing returns to scale (for large enough output levels) and firm-specific productivity factors that result in cost differences across firms. These factors, which may arise from unique talents of personnel or from locational factors, give some sellers cost advantages that cannot be replicated by competitors, at least in the short run. Now, if in one market, these firm-specific factors tend to be fairly similar across firms (and potential entrants), then in a competitive equilibrium, firms in this market will have relatively equal market shares. Further, with low costs of entry, all firms' profits and prices will be prevented from rising far above normal competitive levels. Contrast this situation with a market in which firm-specific productivity factors vary widely. Now sellers with a cost advantage will enjoy larger shares of market sales. Competitive forces will only drive down the profits of marginal sellers (those with relatively high costs). Low-cost firms will earn higher profits. In short, greater inequality in costs across firms will lead to both greater concentration of total market sales and higher average profits.

What implications does the critique of the market-power hypothesis have regarding the relationship between prices and concentration? The connection here is not as clear as in the case of concentration and profits, and the answer

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<sup>5</sup> Gilbert and Zaretsky (2003) provide an excellent review of the literature on banking markets.

is likely to depend on additional characteristics of the markets in question. Plausible models of market behavior might imply either a positive or a negative correlation between concentration and prices. One such specification that implies a positive correlation replaces or supplements the assumption of firm-specific variation in costs with an assumption of firm-specific variation in product characteristics. A seller who is industrious and fortunate enough to produce a product more desirable than its competitors' will enjoy a larger market share and greater profits, and will be able to sell at a higher price. As before, a market with a more unequal distribution of product qualities will be more concentrated and have higher average profits, as well as higher average prices.

In banking, one characteristic that appears to matter for attracting retail deposit customers is location. A bank with a more convenient location may be able to attract deposits while offering a lower interest rate than its competitors. Further, banks with multiple locations may have a competitive advantage, suggesting that size and product quality are somewhat complementary characteristics within a banking market. This dimension of locational advantage, combined with firm-specific differences in the costs of managing multiple-location networks could then result in a distribution of banks according to size, profits, and prices (interest rates). The expected correlations of rates, profits, and concentration would then correspond with those found in cross-market regressions.

So are the observed correlations in banking between local concentration and prices (deposit rates) driven by market power or by competition among heterogeneous sellers? A definitive answer to this question would be difficult to find, and it is likely that both these forces are at work in actual banking markets. But even if purely competitive forces play an important role in driving these cross-market differences, a merger policy based on limiting concentration could still be warranted. Even if large market shares result from the product or cost advantages that some firms have over others, a firm with large market share is more likely to be capable of exercising market power over prices and earning economic profits at the cost of reduced consumer welfare and overall market efficiency. A merger policy that recognizes the possibility of cost efficiencies arising from some large mergers can also recognize that the resulting costs in terms of increased market power could outweigh the gains.

### **3. MERGERS AND MARKET STRUCTURE**

Do mergers lead to increasingly concentrated markets? The trivial answer to this question is yes, in the short run. The immediate effect of a merger between two sellers operating in overlapping markets is that, in the areas of overlap, the total amount of business in the market is divided among a smaller set of competitors than before the merger. Beyond this simple response, the

study of how mergers affect market structure and opportunities for the exercise of market power involves two theoretical questions regarding the behavior of imperfectly competitive markets. First, can two firms in a market increase their pricing power and profits by combining? Second, what are the long-run effects of a merger on market structure, once competitors' responses and the dynamic behavior of the merging firms have been taken into account? The second of these questions inherently refers to dynamic models of market behavior, while the first can be (and has been) addressed in the context of either a static or a dynamic model.

Several papers study the question of whether two firms in an imperfectly competitive market can increase their joint profits by merging. The answer depends on the nature of the strategic interaction among firms. One possibility, pointed out by Salant et al. (1983), is that a reduction in the number of sellers through a merger could cause other rivals to seek to benefit by increasing their own output. These output increases offset the merger's effect on the market price, eliminating any gains for the merging parties. Under alternative models of strategic behavior, other authors have identified conditions under which the merger partners do indeed benefit. Denekere and Davidson (1985), for instance, show that under price competition (with differentiated products), the merger causes other rivals to raise their own prices, leading to gains for everyone, including the merging firms.

Perry and Porter (1985) consider a model of asymmetric competition among sellers with increasing marginal costs that depend on firms' productive capacity. They assume that capacity is tied to physical assets and that there is a fixed amount of such assets available to the sellers in the market.<sup>6</sup> These assumptions have the effect of limiting the competitors' increase in output in response to rising prices. As a result, two firms can find it profitable to merge, reduce their combined outputs, and enjoy the resulting higher prices. Asymmetry in the initial distribution of the productive capacity among the sellers can reinforce this result, making it particularly attractive for two relatively large sellers to merge.

Perry and Porter's analysis can be viewed as a bridge between a static and a dynamic model of market competition. In fact, with freely variable capacity and constant returns to scale, their model is identical to that of Salant et al. If increasing capacity is subject to adjustment costs, and firms make dynamic, strategic investment decisions, the steady state of the model's equilibrium, for a given number of firms, would coincide with the equilibrium of the standard Cournot model. Comparing profits across steady states with different numbers of firms, then, would give the impression that mergers are not profitable, as in Salant et al. But adjustment costs give rise to a transition period, during

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<sup>6</sup> Alternatively, they assume that the adjustment costs associated with acquiring and installing new productive capacity are high.



which the merged firms can benefit, as in Perry and Porter. Gowrisankaran (1999) studies mergers in dynamic oligopoly models.

All of these investigations of merger incentives in imperfectly competitive markets share the assumption that changes in market structure do not change the manner in which prices are determined. In all of the foregoing cases, the prices resulting from a given market structure are the equilibrium outcomes of static noncooperative behavior, whether price-setting or quantity-setting. It's possible that dynamic interaction among sellers in a concentrated market could enable sellers to sustain higher prices than those associated with static noncooperative equilibrium. If the feasibility of such tacit collusion depends on market concentration, then the incentives for mergers to gain market power could be considerably strengthened. This type of motivation would tend to favor mergers among sellers that are already fairly large relative to the market.

In many actual banking markets, especially relatively large markets like those examined in the next section, some participants are small enough so that one can reasonably assume that they do not exercise market power. Such markets might best be represented as having some firms with market power and a "competitive fringe" of price-taking firms. Gowrisankaran and Holmes (2000) investigate mergers in a dynamic dominant firm model. For a given initial distribution of productive capacity between the dominant firm and the fringe, they examine the equilibrium path of investment in new capacity and purchase of capacity from the fringe by the dominant firm (mergers). They find that the tendency of the market to become more concentrated over time depends on the initial concentration. Specifically, the greater the dominant firm's initial market share, the more likely the dominant firm will grow by acquiring capacity from the fringe.

In the studies of merger incentives discussed in this section, the driving force is the desire to profit by the exercise of market power. This body of work suggests that such a motivation for mergers is plausible in a variety of market settings, even though entry and growth by smaller firms will eventually erode the monopoly profits acquired. Stigler's (1950) characterization of the merger waves of the early 20th century was consistent with this view. He shows in particular how mergers in many industries created firms with dominant market shares, only to have those dominant positions dwindle over time.

The foregoing discussion focused on studies of merger incentives where the primary motivation was the acquisition or maintenance of market power. But what if market structure is driven by the relative efficiencies of competing firms, rather than by the desire to gain market power? What does this alternative approach imply about the causes and consequences of mergers? In a dynamic version of such a model, like that in Hoppenhayn (1992), firms and their market shares grow or decline as their firm-specific characteristics

**Table 1 Population and Population Growth 1990–2000**

Market	1990 Population	2000 Population	Percent Growth
Raleigh	541,100	797,071	47.3
Greensboro	540,030	643,430	19.1
Durham	344,625	426,793	23.8
Wilmington	200,124	274,478	37.2
Rocky Mount	133,235	143,026	7.3

evolve.<sup>7</sup> A firm that has a productivity advantage at one point in time may see that advantage diminish over time. Such a model predicts market shares that rise or fall but does not distinguish between growth through new investment and growth through acquisition. One can imagine a model in which both internal growth (new investment) and external growth (acquisition) are subject to adjustment costs. The relative costs of the two forms of growth, together with the evolution of firm-specific productivity factors, would then determine the joint pattern of investment and mergers.

#### 4. FIVE NORTH CAROLINA MARKETS

This section examines the behavior of market shares in five North Carolina metropolitan markets from 1991 to 2002. The five markets studied are Durham, Greensboro, Raleigh, Rocky Mount, and Wilmington. These metropolitan areas range in 2000 population from Rocky Mount with 143,026 to Raleigh with 797,021. These two cities, respectively, also had the slowest and fastest population growth of the group between 1990 and 2002. Population and population growth figures for these metropolitan areas are given in Table 1.

This group of markets does not include all the largest banking markets in the state. Most notably, Charlotte and Winston-Salem are not included. Both of these cities housed the headquarters of banks that were among the 10 largest in the United States during this period. Charlotte was the home of Nationsbank, which merged with Bank of America in 1999 to become the second largest bank holding company in the United States, with the combined Bank of America headquartered in Charlotte. Charlotte is also the headquarter city of Wachovia, the fourth largest bank holding company. Winston-Salem was previously the home of Wachovia until it was acquired by First Union (keeping the Wachovia name for the combined institution) in 2001. The status of these cities as headquarters for very large institutions complicates

<sup>7</sup> Erickson and Pakes (1995) provide a dynamic model that includes both imperfect competition and stochastically varying firm-specific productivities. While that model does not address mergers, it could form the basis of a general treatment of merger incentives.

**Table 2 Banking Market Characteristics in 1990**

Market	Deposits/ Population	HHI	Leading Bank's Share (%)	5 Largest Banks' Share (%)
Raleigh	\$9,990	786	15.66	45.02
Greensboro	\$11,780	747	15.05	48.13
Durham	\$8,800	1286	24.15	63.50
Wilmington	\$9,310	1008	19.98	54.13
Rocky Mount	\$16,690	1365	25.84	64.89

the interpretation of the deposit data on which market concentration information is based. These data are drawn from the FDIC's Summary of Deposits and are based on banks' reported allocations of their total deposits to their various offices. Large banks that serve large corporate customers may have deposits booked in their headquarter locations that come from more widely dispersed customers. This tendency may have become particularly important after interstate banking powers were expanded by 1994 legislation. The objective of studying market concentration in geographically defined markets is to examine the extent to which relatively few banks dominate a market for local business. For the headquarter cities of large banks, a substantial portion of reported deposits may represent nonlocal business.

Table 2 summarizes some characteristics of these banking markets in 1990. With the exception of Rocky Mount, the markets are similar in terms of deposits relative to population, around \$10,000 of deposits per capita. In terms of market concentration, all five markets were either unconcentrated (HHI less than 1,000) or moderately concentrated (HHI between 1,000 and 1,800), as defined by the Department of Justice's merger guidelines. The leading bank's market share ranged from around 15 percent in Greensboro to nearly 26 percent in Rocky Mount. These 1990 market structures fall into three groups. Greensboro and Raleigh appear similar, with HHI less than 800 and the leading firm's share in each market around 15 percent. The "four firm concentration ratios"—the combined market share of the four largest firms in the market—are also similar for Greensboro and Raleigh. These are the two largest metropolitan areas by population, consistent with the general tendency for concentration to be decreasing in city size. The two most concentrated of this group of markets in 1990 were Durham and Rocky Mount. Rocky Mount, the most concentrated, is also the smallest of these metropolitan areas. Wilmington's market concentration characteristics lie between the other pairs of markets.

The differences among the market structures are consistent with evidence that metropolitan areas constitute distinct retail deposit markets. Given that several banks are significant participants in many or all of these cities, one might expect that large, statewide banks would have similar positions in

different cities if the market were integrated on a statewide basis. Instead, in 1990 four different banks had the largest market shares in the five cities. While there are some respects in which the market structures of these cities become more similar over the time period, individual banks' positions remain quite different across the markets.

Between 1991 and 2002, there were 45 mergers involving banks that participated in at least one of these markets.<sup>8</sup> Over 80 percent of these were truly *horizontal* mergers, meaning that the merging banks were competitors in at least one market prior to the acquisition. The remaining transactions are better characterized as market extension mergers, in that they involved the purchase of a bank in a market in which the acquirer had no previous presence. In 13 cases, the merging banks had overlapping activities in more than one of the markets. Transactions vary in size from Southern National Bank of North Carolina's 1993 purchase of East Coast Savings Bank, which had a single office in Raleigh with deposits of \$6.5 million, to the 2002 merger of First Union and Wachovia, which had overlapping activities in all of five markets, with combined deposits ranging from around \$370 million in Rocky Mount to nearly \$3 billion in Raleigh.

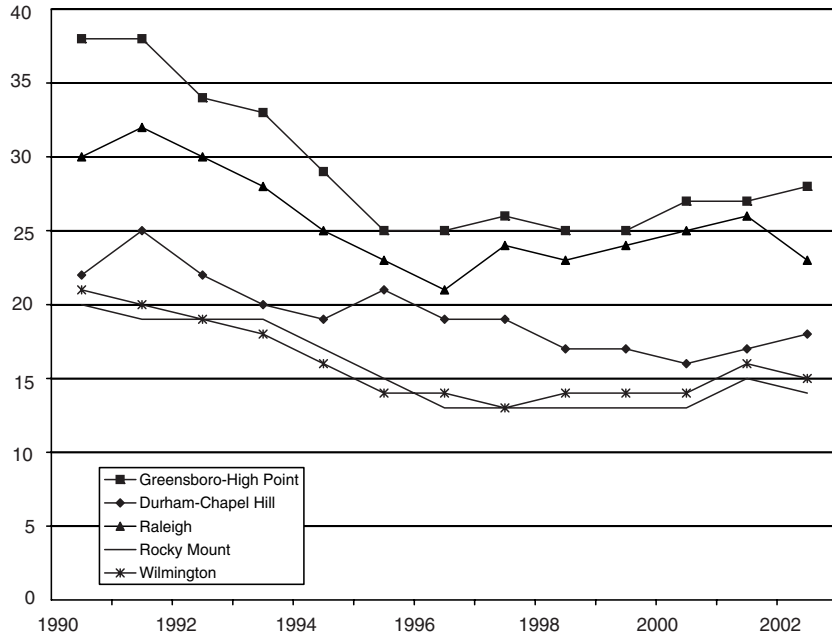
How did this decade of mergers affect the market structures in these metropolitan areas? Figures 3–6 present information on the evolution of market characteristics from 1990 to 2002. Figure 3 begins with the number of banks operating in this market. In all markets, this period saw a substantial decline in the number of banks. There has also been entry of new banks in all of the markets, with net gains in the number of banks coming toward the end of the period. While all of the markets had fewer banks in 2002 than in 1990, markets did not necessarily receive fewer banking services. As shown in Figure 4, changes in the number of offices (branches) were generally not as dramatic as changes in the number of banks. Rocky Mount experienced a fairly substantial decline in offices (about 25 percent), and Raleigh saw a large increase (about 14 percent). In the other markets the number of offices changed very little (less than 3 percent). It is true that deposits per capita fell slightly in all but one (Rocky Mount) of the markets. While this decline could be due to an overall reduction in supply of deposit services, it is just as likely the result of increasing competition from nonlocal banks or nonbank financial service providers for some segments of customers.

Figures 5 and 6 turn more directly to measures of market concentration. Figure 5 shows the evolution of the HHI for each market. Overall, the markets appear to be more similar at the end of the period than at the beginning, with the two least concentrated markets at the beginning of the period having experienced the largest increases in concentration. But a large part of the

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<sup>8</sup> This count includes commercial bank and thrift acquisitions.

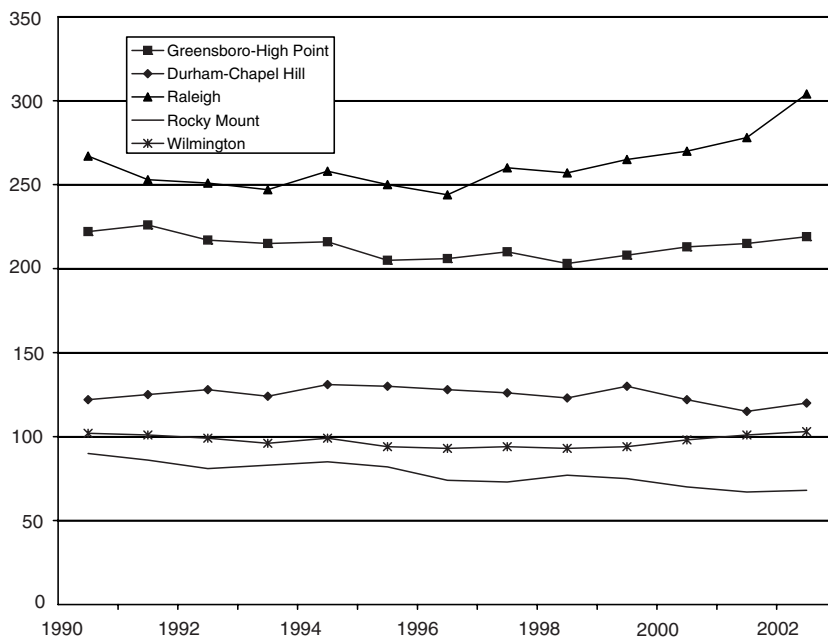
**Figure 3 Number of Banks, 1990–2002**



increase in concentration in Raleigh and Greensboro is associated with the First Union-Wachovia merger. These two banks each had market shares in excess of 10 percent in both of these markets at the time of the merger. Differences in concentration across these markets appear to be fairly persistent before the last observation in the data. Markets that start out more concentrated remain more concentrated.

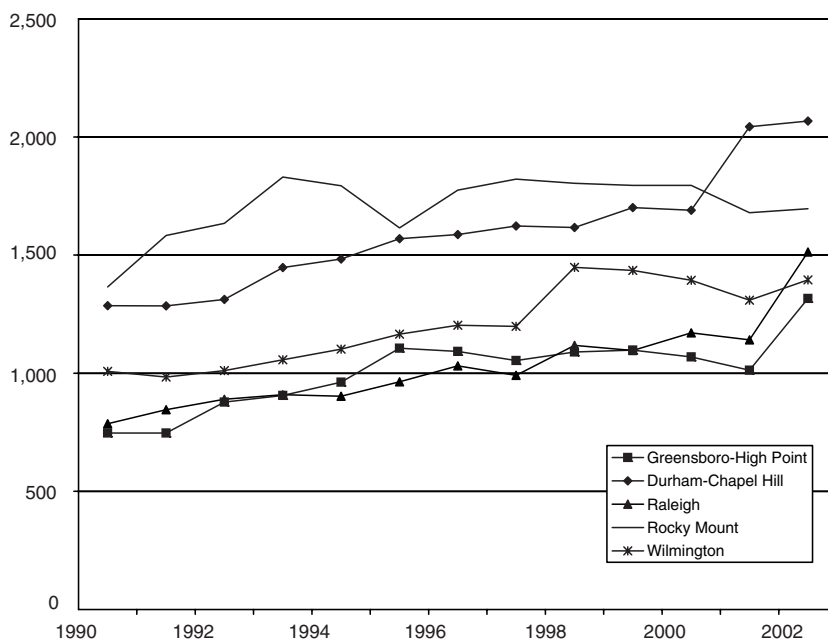
Figure 6 underscores the importance of the First Union-Wachovia merger for the Raleigh and Greensboro markets. This figure shows the market share of the leading bank in each market.<sup>9</sup> In Raleigh and Greensboro, this number changes very little until the last year in the data. A single transaction also plays a large role in the Wilmington market. The relevant merger in this case is BB&T’s purchase of United Carolina Bank in 1997. Durham displays a steady increase throughout the period, as does Rocky Mount in the first part of the period, after which the top firm’s share declines. In general, the behavior of the top seller’s market share seems more idiosyncratic than the broader measure of concentration.

<sup>9</sup>Note that the identity of the leading bank in a market can change over time.

**Figure 4 Offices, 1990–2002**

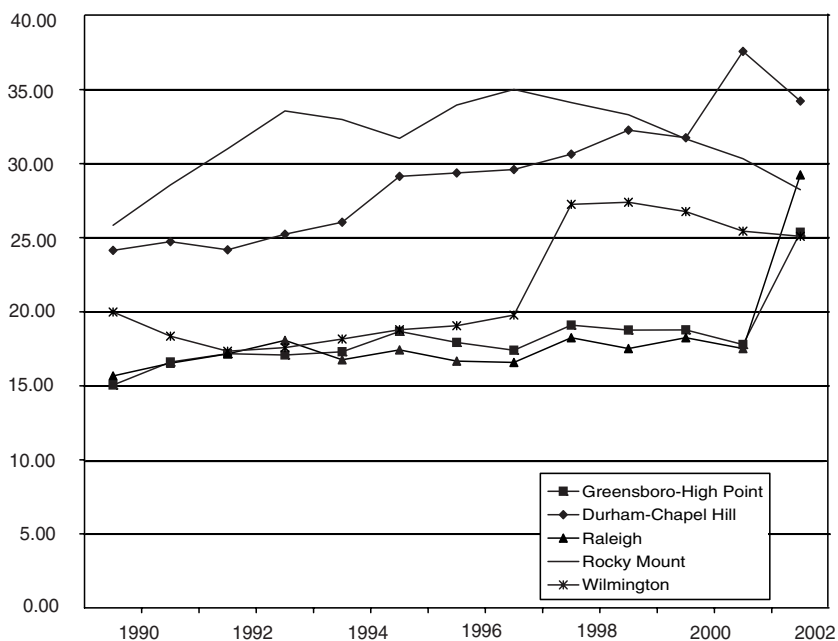
How do the observed patterns in these five markets relate to theoretical views on the motivations for and effects of mergers? First, note that the persistence of differences in concentration across markets suggests that, whatever the forces driving consolidation, local factors are important in determining local market structures. There does not appear to be a unique structure toward which these markets are converging. Also, it is important to bear in mind that banking markets in the United States operate under an existing merger policy that limits the degree of concentration that one might expect to observe. Mergers that would create too much concentration might not be allowed, or might be allowed subject to the sale of some of the combined company's branches to a third party. So if there was a tendency, for instance, for all banking markets to eventually become monopolies, that tendency would not show up in the data. Still, these markets are, for the most part, below the level of concentration at which merger policy tends to intervene, and there is not strong evidence that less concentrated markets are consolidating faster than those that are already more concentrated.

While differences between markets seem to persist, it is the case that all of the markets have become more concentrated. Broadly speaking, this rising concentration is consistent with the models of merger incentives in

**Figure 5 HHI, 1990–2002**

imperfectly competitive markets. Some of these models, Perry and Porter (1985) and Holmes and Gowrisankaran (2000) in particular, suggest that the incentive for a market's large participants to grow by acquisition is increasing in the initial level of concentration. This feature does not appear to be present in the cases examined here. Those same models, however, suggest that the increasing incentives may display a threshold effect, changing discretely once concentration becomes big enough. It is possible then, that all of the markets examined are on the same side of the relevant threshold.

The behavior of the leading firms' market shares (Figure 6) contains an interesting mix of patterns. Two of the markets (Rocky Mount and Wilmington) evolve in a way that seems consistent with Stigler's (1950) evidence on early merger waves. A leading firm in a market increases its share through acquisition, and then sees its share decline over time. This pattern suggests an environment in which, due to entry and adjustment costs, gaining market power through acquisition is possible, but only temporarily. In two other markets (Raleigh and Greensboro), the large increase in the leading firm's share comes at the end of the period, so it's not possible to say whether these markets will follow the same pattern. The last market shows a sustained

**Figure 6 Share of Largest Bank, 1990–2002**

increase in the leading firm's share, which seems consistent with Holmes and Gowrisankaran's model of a dominant firm growing through acquisition.

While the behavior of these markets' structures is consistent with models in which mergers are motivated by the prospect of gains in market power, they are also consistent with the view that mergers are one of the means by which an industry evolves toward an efficient allocation of productive capacity among firms with heterogeneous characteristics. Given the sustained increases in concentration in these markets, one might conclude that the entire period from 1990 to 2002 represents part of a transition from one steady state market structure to another. This view seems consistent with the behavior of the aggregate number of banks, as shown in Figure 1.

## 5. CONCLUSION

The title of this article includes the phrase "preliminary examination," and the article has attempted to view the evolution of market structures in light of alternative theoretical perspectives on the motives for mergers. The findings suggest that observed behavior of markets is consistent either with a theory based on the acquisition of market power or one based on the efficient allo-



cation of productive capacity in local banking markets. A less preliminary analysis of this topic might proceed in one of two ways. First, one could proceed with a more detailed analysis of a small number of markets. Such a study would consider details of the local economies that might affect the demand for banking services. Important factors may include information about business activities and changes in local labor market conditions. Differences in such demand characteristics are likely to be important for explaining differences in concentration across markets or over time. Accounting for such factors could give one insight into the extent to which changes in market structure represent efficient responses to changes in demand conditions.

A second path to follow would be to develop equilibrium models of industry structure and to take those models to the rich data on banking markets. This is the program set forth by Berry and Pakes (1993) and to which Gowrisankaran (1999) constitutes an important contribution. These authors propose models that incorporate both market power (imperfect competition) and the possibility for efficiency reasons to drive differences in firm size and market share. Such models create the potential for the data to speak more directly to the relative importance of the various forces driving consolidation in markets.

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