Bank restructuring and financial stability in the United States

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1. Introduction

The US banking sector is consolidating at a rapid pace. After peaking just under 14,500 in the early 1980s, the number of domestic commercial banks declined to 9,216 by the end of 1997. In 1997 alone, these institutions decreased in number by 359 (4%), capping a period going back to 1992 in which the number of US banks fell by almost 2,300 (20%). At the same time, commercial banking is becoming more concentrated at the national level: the fifty largest bank holding companies held 66% of total domestic commercial banking assets in 1997, compared with 48% in 1987. Alternatively, the largest 1% of banking institutions (about 170 in number) held just over three-quarters of total deposits, up from almost exactly one half held in 1984 (by about 300 in number).

But consolidation is only part of a more comprehensive restructuring. Besides merging with one another, banks are diversifying their loan portfolios, expanding over county and state lines to match their natural market areas, eliminating duplicate charters and taking business away from poor performers. Larger banks are also acquiring capabilities in investment banking, retail brokerage, mutual funds and insurance in order to expand their product lines and become "financial supermarkets". Along with these changes, banks are making many internal improvements. They are revamping their operations by adopting new technology, reorganizing by line of business and creating more centrally managed and operated firms.

The main purpose of this paper is to describe and analyze the consolidation and restructuring of the US banking sector and to demonstrate the effects. In the first half of the paper, we briefly review the fundamental forces prompting the actions being taken by banks and undertake a more detailed examination of both the near-term and long-run objectives of restructuring. We then focus on the considerations underlying some of the giant mergers that transpired in 1998. Of special importance are the business areas that leading banks point to as presenting the best growth opportunities; they suggest the future shape of the banking sector.

In the second half of the paper, we turn to the multiple effects that consolidation has on the banking sector and consider its potential impact on financial stability. It appears that consolidation has already led to an expansion of the geographical reach of markets for retail banking services, which puts banks in a more competitive environment. By restructuring and revamping operations, banks also intend to solidify and expand their position in the payments business. The size and prospective growth of payment-driven revenue imply that bank profitability should become more stable. But they also suggest indirectly that maintenance of the smooth operation of clearing and settlement systems, upon which financial markets depend, is an increasingly important goal of bank supervision and the safety net. Finally, bank consolidation and restructuring are likely to expand, rather than diminish, the role of institutional investors in the financial system.

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2. Fundamental factors at work

The US banking sector has been consolidating and restructuring for at least fifteen years, a process that has been under constant examination. In evaluating the forces driving the process, most analysts do not assign a single fundamental cause but a combination of factors. In keeping with this view, we compile a list of multiple forces that are propelling consolidation and restructuring. Our list resembles prior ones but differs slightly due to incorporation of more recent developments.

Deregulation. Restrictions on bank products, interest rates and branch office location, which shielded the sector from all-out competition, have been loosened. First, protection of product markets was taken away. During the 1970s and 1980s, lawmakers removed interest rate ceilings on home mortgages, credit cards, household checking and savings accounts and small-denomination time deposits. Second, protection of geographic markets ended. From 1985 on, all restrictions on the geographic operations of banking organizations and branch locations have been steadily eliminated. And third, a combination of new legislation, judicial rulings and regulatory decisions extended the range of permissible activities, allowing banks to expand beyond traditional services. For example, banks can now manage mutual funds as well as distribute them to their own customers.

Shifts in the demand for financial services. As early as 1970, the largest and most creditworthy corporate borrowers began to switch from banks to the commercial paper market, the bond market and non-bank financial intermediaries. Since then progressively smaller firms have gained access to the securities markets. As of 1970, US banks held a 76% share of the short-term business credit provided by financial intermediaries and the commercial paper market; by 1997, this share had fallen to 51%. Over the past twenty years, the personal sector's demand for bank deposits has undergone a similar decline. Deposits were a growing category of household wealth through the mid-1970s, reaching 39% in 1978. Currently, deposits have fallen to 14%. Reflecting the shift in investment patterns, mutual fund assets now exceed commercial bank assets. Ironically, the pronounced decline in deposits occurred after the deregulation of rates paid to account holders, an action that should have sustained their demand. The sharp drop in the personal sector's use of deposits appears to be linked to changes in public attitudes, employer practices and government policies regarding pension plans and retirement income.

Advances in computers and communication equipment. Technological improvements have opened up new ways to both produce and distribute financial services. For example, cheaper computing power helped the emergence of liquid markets in complex over-the-counter derivative products and asset-backed securities. And the introduction of centralized call centers for customer sales and service transformed the distribution of no-load mutual funds.

Financial innovation. The services available to household and business customers have multiplied in recent years. Derivative contracts and non-standard mortgage products are just two new instruments changing the finances of businesses and households.

This list is only one way to organize the primary influences acting upon the banking sector. Unavoidably, the factors we identify are not completely distinct from one another and there is redundancy. For instance, a successful innovation – the introduction of money market mutual funds – prompted the removal of deposit interest rate ceilings, a binding regulation. As a consequence of overlap, it is possible to take the items appearing in our list, divide them more finely and recombine the elements into a new list of factors that looks different from our list.[2] Our list could also be revised because what we have identified as underlying influences are actually proximate causes and more fundamental forces are at work. We classified the shift in the demand for financial services as a fundamental force, but one might argue that it is actually a proximate cause because the shift away from banks can be traced back to regulatory burden, a more basic cause.

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[2] Many economists, consultants and bank analysts have compiled lists of the key factors bringing about change in the banking sector. See, for example, Freedman and Goodlet (1998) and Berger, Kashyap and Scalise (1995).

3. Objectives of restructuring

To appreciate the trends in banking, it may be more productive to identify the objectives of consolidation and restructuring than to dwell on their fundamental causes. To this end, we have compiled a list of purposes and goals of mergers. The list gets lengthy because several fundamentals have changed and banks are addressing many competitive problems simultaneously. It should be expected, however, that any particular transaction is motivated, not by a single goal, but by a combination of the objectives listed below and that these objectives do not figure equally in every merger or acquisition. Some goals are more applicable to the fifty largest banking companies, which hold 60% of aggregate bank assets and 56% of aggregate deposits (1998, second quarter) and less applicable to small community banks.

Geographic diversification. Diversifying the loan portfolio and customer base is a clear goal of out-of-market acquisitions made by medium-sized banks. Seeking diversification are banks with $5 to 25 billion of assets and whose operations are concentrated in areas radiating roughly 100 miles from their headquarters. Usually these banks are expanding from their home bases by entering neighboring states. While many banks of this size and geographic scope are aiming for better diversification, the marginal benefit of entering an additional state is probably small for the largest banks.

Cost cutting and near-term efficiency gains. Attacking a high cost structure may be the single most important factor motivating restructuring. Bankers feel that they are at a distinct cost disadvantage relative to mutual funds, discount brokerages and specialist intermediaries such as a monoline credit card issuer. Cost considerations are greatest in the distribution system and in payment services. Banks incur heavy non-interest expenses by operating a branch network, the primary delivery mechanism for retail depository services.[3] They use mergers in conjunction with the revamping of operations and internal reorganization to improve efficiency. Cost reductions and efficiency gains are achieved in several ways:

- *Rationalizing excess capacity.* In-market mergers make it easier to wring out excess capacity created by declining demand for traditional lending and depository services. While cutbacks can be made individually, it is more efficient to shed capacity in tandem with competitors. By shrinking after combining, banks can coordinate their efforts to reduce capacity in overlapping operations and thereby recover more of their "sunk" costs. For example, two banks together have more flexibility in pruning underutilized branch offices than they do separately. In addition, it is possible to operate a combined credit card division through the facility of one of the merged banks and close the other's facility. An individual bank, however, may experience little cost recovery from reducing the size of a credit card facility originally designed for a larger customer base.
- *Eliminating duplicate charters within a holding company.* While this is an obvious source of cost savings, we infer that the efficiency gain is relatively small. Some banking organizations have not been aggressively correcting this inefficiency stemming from prior interstate banking and intrastate branching restrictions.
- *Forming critical mass in geographic areas.* Contrary to the goal of geographical diversification, several large retail banks profess a strategy of concentrating their regional presence – in other words, striving for economies of density. Bankers say they execute in-market mergers (also called fill-in acquisitions when they are small) to build a significant market share (at least 20%, when measured by deposits) in every major city, region or state covered by their branch network. As well as bringing in a number of intangible benefits, regional concentration enhances name recognition, maximizes the effect of advertising and helps a bank capture a disproportionate share of the new business in an area. Creating monopoly power in local markets, however, does not appear to be a goal since many large banks set retail deposit and loan rates uniformly throughout a state. (Competition in retail banking markets is discussed later.)

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[3] Measured as a percentage of deposits, industry sources typically estimate the all-in non-interest cost of producing and distributing depository and payment services through a branch office to be on the order of 250 basis points; by comparison, the expense ratio of a typical money market mutual fund is less than 50 basis points.

- *Realizing economies of scale in retail banking.* Banks are attempting to close branch offices and convert to electronic delivery of their services, but they are duplicating their efforts to update their software, build call centers and develop electronic banking and brokerage services. Acquiring banks can spread the costs of lumpy investments across a larger depositor base.[4] Some banks claim that spending on technology adds 15% to their total non-interest expense. (Every bank has its own method for allocating expenses to the category "technology.") In addition, there is great uncertainty over which products and delivery mechanisms currently in the planning, testing or early stages of implementation will eventually turn out to be cost-effective and meet customer acceptance. Mergers are a way of sharing these high risks and costs.

- *Replacing poor management.* Because management quality is not readily measurable, it is difficult to provide quantitative evidence that mergers are the mechanism for effective managers to extend their reach. But a recent buyer of a large thrift institution remarked that its cost of processing an application for a residential mortgage was less than half the cost at its acquisition.[5]

Despite the claims of merger participants and bank equity analysts, most econometric studies cannot identify either efficiency gains following a merger or substantial economies of scale for a commercial bank whose total assets exceed $1 billion. At best, researchers uncover mixed empirical evidence of cost savings from in-market mergers of large banks. One does not know whether to discount these studies because they are plagued by erroneous data or by poorly defined measures of output and expenses. Since it is tricky to allocate the costs of shared resources among divisions of a bank, efficiency could be mismeasured. Improvements in the sector's efficiency ratios suggest that mergers do yield meaningful cost savings. Consultants also maintain that they can identify savings because their client banks provide them with better data than what are made available to outside analysts and economists.

Strategic positioning for long-run benefits. Besides becoming more efficient business firms in the near term, the largest banks are taking steps to position themselves in a changing marketplace for financial services:

- *Developing a national brand name.* With very few exceptions, the public does not recognize the names of the largest US banks. A brand name allows a bank to form a larger or more focussed customer base, from which it could better profit from the introduction of new products or innovations in its distribution channels.

- *Creating financial supermarkets.* Banks are expanding into investment banking, retail brokerage, mutual funds and insurance in order to offer retail and middle-market business customers "one-stop shopping" for financial services. Large corporate and institutional customers, however, do not seem attracted to the idea.

- *Expand payments services.* Banks' business customers have expressed interest in electronic formats for household-to-business and business-to-business payments. With respect to their retail customers, business firms can reduce overhead costs if banks make the monthly billing and payment cycle electronic from end to end. Similarly, with respect to both their suppliers and distributors, firms can streamline their accounting and inventory procedures if banks make payment and remittance processing entirely electronic. The Internet, which may be used for recurring bills, corporate purchasing cards and electronic data exchange (EDI) is also an area that looks very promising, although no one knows for sure which new services or devices will be successful.

- *Creating the scale needed to compete in global wholesale markets.* Greater size gives a securities dealer the capacity to place large volumes of new issues with institutional investors quickly and with

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[4] A common thread running through several large mergers is the fact that an acquired bank decided that it did not have the resources to make the technology investments necessary to remain competitive. Some acquired banks said explicitly that they had urgently needed to upgrade their hardware, software and electronic banking facilities, whereas their merger partner had already done so.

[5] It is sometimes also said that a merger permits cost-conscious management to take extraordinary steps, such as reducing the workforce. Only in the context of a merger are cost-cutting actions not harmful to staff morale and productivity.

less risk to itself. And placement power gives a larger dealer an edge in bidding for underwriting business. Conversely, the ability to offer more new issues helps a larger firm compete more effectively for the brokerage accounts of institutional investors. Underwriting and brokering thus complement one another. In addition, bigger underwriting and brokerage businesses can sustain a higher-volume trading floor.

This long list of objectives shows that banks are moving in several directions at once to achieve both near-term gains and long-run goals. Some industry analysts, however, doubt that these are the true aims of restructuring. Their qualms reflect skepticism of the need for restructuring, a view that is not entirely implausible considering the recent good health and profitability of the banking sector and the failure of researchers to confirm cost savings. Some analysts argue that the creation of increasingly larger banks through consolidation is motivated by monopoly power in individual product or geographic markets, "empire building" on the part of management or taking advantage of the safety net by getting "too big to fail".

One cannot readily evaluate these alternative explanations for mergers and they are almost impossible to confirm or to dismiss entirely. As identified earlier, however, there are several tangible factors that are clearly impacting the banking sector and they call for a sweeping response. It seems plausible that these factors are the principal drivers of restructuring rather than management acting entirely in its own interest, exploiting subsidized deposit insurance or amassing market power. Consequently, we believe that geographical diversification, efficiencies and strategic repositioning are banks' primary aims, although there is room for secondary considerations, such as a desire to build a financial services empire.

4. Directions the banking sector is taking

In the US banking industry, several mergers of unprecedented size have transpired during the past year, although some have not yet been finalized. In terms of total assets, the largest of these transactions created Citigroup from Citicorp and Travelers Group. In terms of domestic deposits, the largest combination is BankAmerica and Nations Bank, which created a company that holds 8.1% of total domestic deposits; the next largest, Banc One, holds 3.8%.

Public discussions and commentary illustrate the considerations underlying giant mergers. To a large degree, some conventional considerations motivate the moves. For example, the transactions allow the transfer of the acquiring bank's superior technology, service and sales skills and distribution systems to the acquired bank's franchise. In addition, management expects to quickly realize cost savings primarily in retail banking, but also in wholesale banking and, to a lesser extent, corporate overhead. Such savings are anticipated to amount to about 10% of combined expenses. The major sources of these cost savings are staff reductions, the closing of redundant facilities and lower expenses for software development.

Although the near-term gains have been discussed and commented on in detail, greater emphasis is placed on long-run considerations. The management teams identify several strategic benefits:

- The new bank will have the scale to spread out the costs and risks of developing and deploying new products and distribution channels.
- The new bank will cultivate a national brand name.
- The new bank will make available a full line of financial services for households, small businesses and middle-market firms.
- In the cities and states in which it operates, the new bank will hold a significant market share.

These considerations are included in our list of the objectives from consolidation and restructuring.

4.1 Growth areas

In public discussions and commentaries, the management teams identify and appraise the business areas presenting the best growth opportunities. These discussions reveal what major participants in the consolidation process see as the future course of the financial services industry in the United States. Although opinions differ, management frequently agrees on three areas that present the best opportunities: asset management, payment services and middle-market banking.

Asset management. Personal finances have become much more complicated as the average American household is now responsible for securing much more of its retirement income. Thirty years ago, traditional pensions and the Social Security program provided the bulk of a household's retirement income; thus a life insurance policy and some deposit accounts were the only financial services it needed. Today, however, the traditional defined-benefit pension plan, funded and managed by one's employer, is being replaced by self-directed retirement plans, which require detailed records, are subject to confusing tax treatments and often need to be restructured at the time of a job change. The average household now has a pressing demand for portfolio management, brokerage services, tax advice, retirement planning and recordkeeping. In this setting, a bank that can provide a full array of reasonably priced products – offering one-stop shopping for financial services – becomes increasingly attractive. In preparation for this transition, banks have upgraded their computer systems in order to create a complete profile of a customer. A sophisticated information system makes it possible for banks to offer advice, recordkeeping and comprehensive statements of an individual's net worth, investment performance and budget. As an alternative to consolidating most or all of its financial activities, a household could use multiple banks, brokerage firms, insurance companies and mutual funds. It could then hire a financial planner for personalized help, but this is a more costly approach.

Middle-market firms. The banking needs of medium-sized business firms – those with annual sales of $10 to 250 million – have also grown more complex. First, they must manage foreign exchange risk more carefully since they import and export larger shares of their inputs and outputs. Second, these firms have more choices when obtaining funds: loan, debt or equity; public issuance or private-placement; and domestic or overseas financing sources. Third, they more often require advice and financing as they engage in mergers, acquisitions and divestitures. To meet the needs of middle-market firms, a leading bank will offer securities underwriting, risk management and merger advice as well as credit, depository, payment and trust services. These firms may be highly receptive to one-stop shopping in order to reduce search costs and be assured of fair treatment from a financial intermediary or a trading partner that has superior information. By consolidating its financial business, a firm encourages its bank to base its decisions on the long-run value of their relationship and to not take advantage of the firm in any isolated transaction.

Payment services. Acquiring banks show considerable interest in the payments business. In the short run, they will internalize a higher proportion of customer transactions (making them "on-us" credits or debits), which confers advantages in terms of cost, time, funding, credit certainty and data mining. In the long run, however, the banks hope to convert most household-to-business and business-to-business payments to a convenient electronic format. By expanding their electronic payment services, banks are not only pursuing a profitable opportunity, but also executing a defensive stratagem: they are guarding their customer base from attack by "technology" firms. Banks want to avoid the fate foreshadowed by their arrangements with money market mutual funds, in which a bank supplies payment services but the organizer of the mutual fund becomes the primary contact for the customer.

Based on their best prospects for growth, we can develop a sketch of how the largest banking organizations will look. To household and small business customers, they will sell a wide range of services nationwide under a recognized brand. A full-line bank, however, may only produce some services in-house; many, even most, of the services a bank distributes to its customers may be produced by specialist firms.[6]

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[6] Other analysts argue that economies of scope in both the production and consumption of financial services are diminishing. They expect banking and the financial services industry to become more fragmented as financial intermediaries focus on well-defined specialties.

Among their business customers, most of the largest banks will concentrate on middle-market firms. If search costs and fair treatment induce a firm to cultivate a longstanding relationship, significant economies of scope underlie the consumption of financial services by a middle-market firm. In contrast, leading banks may seek large corporate and institutional customers only for selected services. Because large corporations engage in sizable transactions and can draw on considerable resources, they may always shop around to find the low-cost or high-quality specialists in equity or debt underwriting, risk management or merger and acquisition advice and financing. In other words, the economies of scope in the consumption of financial services are much weaker in the large corporate sector.

For both retail and wholesale customers, a leading bank will perform traditional payment services, including cash management, merchant processing and corporate trust, as well as support electronic payments. For individuals, the attraction of electronic payments is convenience and flexibility; for business firms, the benefits are reduced paperwork and overhead expenses.

4.2 Implications

The vision of a leading bank described above implies an even greater role for institutional investors and the securities markets in the US financial system. By familiarizing their customers with investment products, banks will further discourage the use of deposits while promoting direct holdings of securities in a brokerage account or indirect holdings through retirement plans, mutual funds or other collective investment vehicles. In addition, banks will make security issuance more widely available to middle-market business firms through their investment banking departments.

This plan for the future also indicates greater relative importance for banks as providers of payment services. At the retail level, leading banks will try to enlarge their role in both household-to-business payments and in business-to-business payments. At the wholesale level, greater securities issuance will mean more institutional and corporate trust business and larger daily flows of cash and securities generated by trading. (The current size of the payments business will be discussed later.) Greater issuance will also mean diminishing importance for a bank as deposit-taker and monitor of loans.

5. Expanding geographic markets

Our attention will now shift from the goals of consolidation and restructuring to their effects; in particular, we will look at the impact on competition in the banking sector. The longstanding view among policymakers and economists is that, since households and small business firms rely on nearby depository institutions, competition in retail banking takes place in very local markets.[7] Moreover, banks are thought to design their services and set their loan and deposit rates in response to demand and supply conditions prevailing in these small and confined markets. In keeping with this view, the effects of bank mergers on competition are assessed by examining the degree to which deposits in a particular city, county or metropolitan area are concentrated in a few large banks.[8]

We believe, however, that restructuring is making traditional definitions of retail banking markets obsolete.[9] First, geographic restraints on expansion have been removed. Although branch locations were heavily restricted in most states as late as 1985, banks are now essentially free to establish branches nationwide. Geographic deregulation has led to considerable growth in branch office networks and to substantial overlap in service areas.

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[7] It is recognized, however, that certain products, such as all-purpose credit cards, are offered in a national setting.

[8] For a description of current procedures for defining markets and evaluating the level of competition in these markets, see Amel (1997).

[9] This section draws heavily on Radecki (1998).

Second, banks are striving for greater efficiency in payment, credit and depository services not only by adopting new technology, but also by centralizing their operations and shifting decision-making responsibility from local managers to the head office. Until recently, bank holding companies have been decentralized business firms, operating under separate charters in every state or region of a state. Each bank owned by a holding company would post a different schedule of rates for its deposit and loan products. To eliminate inefficiencies arising from redundant facilities and nonstandard products, many holding companies are now centralizing their management structure organizing their operations along business, rather than geographic, lines and placing most, if not all, banking activities under a single charter. Consolidation of decision-making at headquarters encourages holding companies to adopt uniform deposit and loan rates.[10]

Intrastate deposit and loan rate patterns

To judge the breadth of markets, we first examine consumer deposit and loan rate data collected across cities in the same state to determine whether the patterns observed are consistent with the existence of local markets. If banks operate in narrowly confined markets, they should vary their retail interest rates in response to local demand and supply conditions and intracity differences in a bank's rate schedule ought to be observed. If banks operate in broad markets, they should set uniform rates over regions that are wider than metropolitan areas. Uniform interest rates across an entire state would indicate that retail banking markets are not local.[11]

Data collected by the *Bank Rate Monitor* during March 1997 reveal that the current practice among many banks is to set uniform interest rates for both deposits and loans across an entire state or wide regions of a large state. In Tables 1-3, interest rates for savings accounts, retail time deposits, auto loans and home equity lines of credit for a few banks are shown for the largest cities in California, Texas and New York, the country's three most populous states. The practice of uniform pricing, however, goes beyond the banks and cities appearing in the tables. For example, the survey contacted ten Texas banks at both their Dallas and Houston branch offices, although only four banks are shown in Table 2. These ten banks jointly hold 76 and 70% of total deposits in Dallas and Houston, respectively. All ten post identical deposit and loan rates in the two cities. This pattern among banks in these large states implies that the geographical reach of retail banking markets is much larger than a metropolitan area.

Unlike the banks in the prior examples, the major banks in Pennsylvania and Florida do not set uniform rates statewide, but their rates are uniform over extensive areas, spanning several local markets as currently defined (Tables 4 and 5). The patterns in these two states may not give unqualified support to state-level markets; however, they contradict the use of small local markets for the analysis of competition.

While the prevailing practice is to set uniform rates at all of a bank's branches within a particular state, rates usually differ among branches that are operated by the same bank or holding company but are located in different states. The banks owned by Fleet Financial Group, for example, set uniform rates within Massachusetts, Rhode Island, Connecticut, New Hampshire, Maine and upstate New York, but they do not set exactly the same rates in any two states (Table 6). The magnitude of these interstate rate differentials may be large enough to indicate separate markets at this time. Nevertheless, rate differentials such as these may fade away as banks take full advantage of the Riegle-Neal Interstate Banking and Branch Deregulation Efficiency Act, implemented on June 1, 1997 and as holding companies consolidate their operations into a single bank.

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[10] For example, Banc One Corporation, which operated seventeen banks and used seventeen corresponding pricing regions in the state of Ohio, has consolidated its operations in the state into a single bank and posts identical checking and savings accounts rates at all branches. See *Bank Rate Monitor* (1997).

[11] Although earlier studies that have looked at patterns in deposit rates across locations have yielded mixed evidence on the size of markets, they generally have found that markets are not national; see Keeley and Zimmerman (1985).

Table 1
Deposit and loan rates at selected banks: California
In percent

Bank	Cities to which the rates apply*	Savings account	Six-month time deposit	One-year time deposit	Auto loan	Home equity line of credit
Bank of America	all four	2.43	4.86	5.13	8.75	8.79
Wells Fargo	all four	2.38	4.87	5.15	NR	8.92
Great Western	all four	2.50	5.35	5.50	10.75	9.24
Home Savings	all four	2.45	5.03	5.75	10.25	6.00

* The four cities are Los Angeles, Sacramento, San Diego and San Francisco. NR: not reported.

Table 2
Deposit and loan rates at selected banks: Texas
In percent

Bank	Cities to which the rates apply*	Savings account	Six-month time deposit	One-year time deposit	Auto loan	Home equity line of credit
Banc One	all four	2.78	4.70	4.90	8.99	–
Bank of America	all four	3.05	4.39	4.65	13.50	–
NationsBank	all four	2.05	4.64	4.64	9.50	–
Texas Commerce	all four	2.12	4.28	4.65	9.50	–

* The four cities are Austin, Dallas, Houston and San Antonio. At the time of the survey, home equity lines of credit were not available in Texas.

Table 3
Deposit and loan rates at selected banks: New York State
In percent

Bank	Cities to which the rates apply*	Savings account	Six-month time deposit	One-year time deposit	Auto loan	Home equity line of credit
Key	all five	3.01	4.25	5.75	9.25	8.25
Chase Manhattan	all five	2.79	4.65	4.71	8.95	8.25
Fleet & Fleet, N.A.	all 4 upstate cities	2.32	4.34	4.55	9.25	10.00
	New York City	2.27	4.29	4.39	9.25	10.00
Marine Midland	all 4 upstate cities	2.79	5.10	5.48	10.75	9.50
	New York City	2.73	4.71	5.14	9.25	9.50
M&T and East New York Savings Bank	Buffalo, Rochester and New York City	2.28	5.00	5.50	9.95	8.25
First Federal S&L of Rochester	Buffalo, Rochester, Syracuse and New York City	2.55	5.50	4.74	9.75	6.49

* The five cities are the four upstate cities of Buffalo, Rochester, Syracuse and Albany, plus New York City.

Table 4

Deposit and loan rates at selected banks: Pennsylvania

In percent

Bank	Cities to which the rates apply*	Savings account	Six-month time deposit	One-year time deposit	Auto loan	Home equity line of credit
CoreStates	Philadelphia	1.90	3.10	3.50	8.99	8.75
	ABE, SCR, HAR	2.00	3.50	4.00	8.00	8.75
First Union	PHL, ABE, SCR	1.00	4.00	4.25	9.49	5.75
Mellon	PHL, SCR	2.00	2.75	3.25	9.49	(9.50 in PHL) (9.40 in SCR)
	HAR, PIT	2.02	4.25	4.65	10.50	8.99
PNC	Philadelphia	2.00	4.26	4.75	9.00	9.75
	Harrisburg	2.19	4.52	4.91	9.50	9.50
	ABE, SCR, PIT	2.49	4.30	4.75	9.25	6.99

* The five cities are: Allentown-Bethlehem (ABE), Harrisburg (HAR), Philadelphia (PHL), Pittsburgh (PIT) and Scranton (SCR).

Table 5

Deposit and loan rates at selected banks: Florida

In percent

Bank	Cities to which the rates apply*	Savings account	Six-month time deposit	One-year time deposit	Auto loan	Home equity line of credit
Barnett	Jacksonville	2.15	4.55	4.85	9.50	10.25
	DYB, LKD, ORL and MEL	2.15	4.55	4.85	10.50	8.49
	Tampa	1.75	4.55	4.85	10.50	8.49
	Sarasota	1.75	4.55	5.00	9.50	8.49
	West Palm Beach	2.15	4.55	4.85	10.50	11.75
	Miami	2.15	4.55	4.85	10.50	8.49
First Union	Jacksonville	1.90	4.00	4.25	9.33	NR
	DYB, LKD, ORL and MEL	2.00	4.10	4.35	9.33	10.25
	Tampa	1.90	3.85	4.20	9.33	10.25
	Sarasota	2.00	3.85	4.20	9.33	10.25
	West Palm Beach	1.90	3.90	4.20	9.33	NR
	Miami	1.90	4.00	4.25	9.33	10.25
Nations Bank	all 9 cities	1.01	4.15	4.60	10.00 (9.50 in WPB)	10.25
SunTrust	Jacksonville	2.20	4.81	5.00	8.50	10.25
	Daytona Beach	2.00	3.90	4.75	9.05	10.25
	Lakeland	2.00	4.75	4.95	10.35	10.25
	Orlando	2.00	4.75	4.90	8.50	10.25
	Melbourne	2.00	3.90	4.75	9.69	10.25
	TPA and SAR	2.00	4.55	4.86	8.50	10.25
	West Palm Beach	2.00	4.40	4.60	8.75	7.25
	Miami	2.00	4.30	5.20	8.50	7.25

* The nine Florida cities are: Jacksonville, Daytona Beach (DYB), Lakeland (LKD), Orlando (ORL), Melbourne (MEL), Tampa (TPA), Sarasota (SAR), West Palm Beach (WPB) and Miami. NR: not reported.

Table 6
Deposit and loan rates across states: Fleet Financial Group
In percent

State	Savings account	6-month time deposit	1-year time deposit	Auto loan	Home equity line of credit
Massachusetts	2.17	4.18	4.45	9.25	9.75
Rhode Island	1.61	4.08	4.34	9.25	10.00
Connecticut	2.02	4.18	4.39	8.75	9.75
New Hampshire	2.32	4.34	4.45	9.25	10.00
Upstate New York	2.32	4.34	4.55	9.25	10.00
Maine	2.02	3.82	4.03	9.25	10.00

5.1 Changing relationship between concentration and deposit rates

Next, we examine data collected in an annual national survey to determine whether local concentration tilts deposit rates to a bank's advantage. Several studies analyzing data collected by this survey in the mid-1980s find that higher local concentration – that is, the degree to which deposits in a particular locality are concentrated in a few banks – affected both the level of deposit rates and their speed of adjustment following changes in interest rates in the national money market. In particular, Berger and Hannan (1989) showed that a bank's savings account rate tends to run two basis points lower for every increase of three percentage points in the local market's three-firm concentration ratio (the combined deposit share of the three largest competitors). Other studies confirmed and refined the Berger-Hannan study or extended the analysis to home mortgages and small business loans. Nearly all of these studies, however, are somewhat dated because they use data on retail deposit accounts from the 1983-87 period. Since that time, the sector has changed markedly and uniform deposit rates over broad areas spanning several cities and the intervening regions are observed.

To investigate the relationship between concentration and deposit rates, we re-estimate some regressions specified in earlier research. Data on deposit rates are drawn from the findings of the June 1996 Survey of Selected Deposits and Other Accounts, conducted by the Board of Governors of the Federal Reserve System. The survey collects information on checking and savings accounts and time deposits from 399 commercial banks and thrift institutions nationwide.

In the regression analysis of the survey's findings, the interest rate a bank pays on savings account deposits is explained by concentration in the local area (measured by the Herfindahl-Hirschman index (HHI)) and some control variables to account for differences among banks and local areas related to their respective size and for regional differences in wage rates, population density or any other relevant characteristic (Table 7).[12] Using 1996 data, the regression analysis finds that the estimated coefficient of the concentration variable is not statistically significant – and it does not even have the expected negative sign (Table 8). This result indicates that concentration at the local level no longer matters for interest rates paid to retail depositors. By contrast, the importance of concentration in the mid-1980s is indicated by the high significance of the concentration variable in the equation estimated by Hannan from 1985 data (with a t-statistic of –6.79, shown in Table 8) and confirmed by other studies analyzing data from the same era. (Hannan's results obtained from 1993 data are also shown for comparison.)

[12] The Herfindahl-Hirschman index is defined as the sum of the squared market shares of all banks operating in an area. The local areas are determined by the US Census Bureau's metropolitan statistical areas (MSAs).

Table 7
List of variables used in regressions

Variable	Definition or explanation	Sample means	
		Number of observations	
		200	390
Savings account rate	The interest rate paid on money market savings accounts	2.59	2.54
HHI	Herfindahl-Hirschman index of concentration	local	state
		1,784	1,134
3-firm concentration ratio	Sum of three largest deposit shares	local	state
		63.3	49.0
Bank's total assets	In billions	$3.54	$4.67
Population	In millions	local	state
		2.65	9.57

Sources: Federal Reserve System's Monthly Survey of Selected Deposits and Other Accounts, SNL Branch Migration Data Base (version 6.1), FDIC.

Table 8
The relationship between a bank's savings account deposit rate and local area concentration

Explanatory variables	Year in which survey was conducted		
	1996	1993 (Hannan, 1997)	1985 (Hannan, 1991)
Intercept	2.35	2.62	7.12
	(10.85)	(20.79)	(96.05)
Local area concentration measured by the HHI	0.38E-4	–0.46E-4	–2.32E-4
	(0.53)	(–0.99)	(–6.79)
Bank total assets	0.22E-2	–0.64E-2	0.53E-2
	(0.43)	(–2.25)	(0.91)
Local area population	0.11E-1	–0.23E-1	–1.52E-2
	(0.53)	(–2.25)	(–1.26)
R-square	0.061	0.074	0.124
Number of observations	200	341	330

Notes: Regional dummy variables are included in the 1993 and 1996 regressions but the estimated coefficients are not reported. In the 1985 regression, the annual rate of business failures in the state in which a bank is located is included; the estimated coefficient for this variable was 0.12E-3 (1.26). Numbers shown in parentheses are t-statistics.

Next, we estimate regression equations comparable to those just discussed to see whether concentration at the state level influences retail deposit rates.[13] Table 9 reports the results from two regression equations: one using the state HHI as the concentration measure and the other using the state three-firm concentration ratio. The estimated coefficient of the concentration measure is significant in both regressions.

[13] Variables used earlier are redefined in order to take this step: deposit concentration at the state level replaces deposit concentration at the local level and state population replaces population in the local area.

Table 9

The relationship between a bank's savings account deposit rate and concentration at the state level

Explanatory variables	Year in which survey was conducted	
	1996	**1996**
Intercept	3.04	3.60
	(16.27)	(11.24)
State concentration measured by the HHI	–0.24E-3	–
	(–3.00)	
State three-firm concentration ratio	–	–0.16E-1
		(–3.42)
Bank total assets	–0.32E-2	–0.29E-2
	(–1.12)	(–1.01)
State population	–0.25E-2	–0.27E-2
	(–0.42)	(–0.45)
R-square	0.073	0.079
Number of observations	390	390

Notes: Regional dummy variables are included but their estimated coefficients are not reported. Numbers shown in parentheses are t-statistics.

5.2 Implications for stability

For many years, analysts delineating geographic markets for retail banking services have referred to demand forces and, consequently, have judged markets to be small and local. Current data suggest, however, that state boundaries now approximate the shape and extent of retail markets better. A shift to broader markets, determined from the supply side, is a development that is congruent with the growth of branch office networks and with the changes banks are implementing in both their operations and internal organization.

Changes that brought about broader markets, as well as the broader markets themselves, may affect the competitive environment and the stability of the banking sector. As a bank acquires a larger branch network to achieve a better geographic diversification, its revenue and profitability will become less cyclical and it will also be less vulnerable to a downturn in the local economy or a single key industry. As a result, broader markets are coinciding with changes that should make banking less prone to episodes of extreme weakness.

Broader markets, however, also suggest that banks are operating in a more competitive environment. At the state level, banking is usually less concentrated than it is at the local level. In addition, the expansion of markets is related to the lifting of interest rate ceilings and branching restrictions that protected banks from all-out competition. A natural outcome of more vigorous competition, however, is a higher incidence of failures, the market's punishment for poor performance. Heightened competition may also encourage risk-taking, which would also raise the incidence of failures.[14] More frequent failures increase the probability that a large bank may fail during a time of stress in the financial markets.

[14] The FDIC Improvement Act and its provisions for prompt corrective action may offset a tendency to take more risk and reduce the frequency of bank failures.

6. The future shape of the banking sector

Further consolidation will alter the prospective structure of the banking sector, but how radically is unclear. The mainline projection, made by extrapolating from the consolidation that has occurred over the past twenty years, is for the number of banking companies (the sum of bank holding companies and independent banks) to decline from about 7,100 in 1997 to about 4,000 in five to ten years. The largest fifty would hold 75 to 80% of total domestic banking assets in the industry, up from 66% today (Berger, Kashyap and Scalise, 1995). This projection, however, does not imply a sharply different structure from the present one. A projection of 4,000 banks preserves a meaningful role for community banks (assets of less than $1 billion), although their number and share of total bank assets would fall over time. Underlying this projection is the assumption that the main drivers of consolidation are geographical deregulation and rationalization of capacity.

Introducing uncertainty into any projection of consolidation are technological change, continued erosion of the deposit base and the effects they bring about. Factors such as more heated competition, the cultivation of national brand names and the declining value of branch office networks may combine to threaten the viability of community banks.[15] In a setting more favorable to large banks, the credit card business may offer a better model than the experience of 1970-90. The credit card segment of retail banking has already evolved into what is now essentially a mail and telephone operation, where large players serve a national market with a branchless distribution system. Measured by managed credit card loans (loans on the balance sheet plus securitized loans outstanding), the fifty largest companies currently appear to control around 95% of this business line and concentration is rising. If the sector as a whole were to follow the pattern in the credit card segment, no more than fifty banks would account for 95% of total business. The credit card model thus implies consolidation well below 4,000 banks, although the last 5% of the sector could be shared by either a thousand or more community banks or just a handful of fairly large banks. The strength of customer loyalty to local depository institutions would determine the number of surviving community banks.

Consolidation into a relatively few banks could exacerbate the so-called too-big-to-fail problem. In general, bigger institutions, if suddenly placed into receivership, imply more disruption to the financial system. But consolidation does not necessarily create institutions that are too big to fail. Mitigating the problem is the fact that several of the newly formed banks are not only well diversified but also oriented toward retail business segments. Because the activities of a retail bank are relatively simple and many households and small business firms have access to other sources of credit, the fallout from the failure of a predominantly retail, although very large, institution may be manageable. In contrast, specialization worsens the too-big-to-fail problem. Some specialist banks are heavily involved in the large-value payments business and in trading and market-making in foreign exchange, securities and derivative instruments. The failure of a payments specialist or a market-maker, even though it may not rank among the very largest banks, may be deemed too disruptive.

7. The payments franchise

One of the foremost aims of consolidation and restructuring is the solidification and expansion of a bank's payments business, which is seen as a prospective growth area. To some, these statements may be surprising since the size of the payments area is not widely appreciated. Payment services may be overlooked due to a lack of good information. In reports to supervisory agencies, banks provide quantitative information bearing primarily on their safety and soundness. By design, these reports transmit data on profitability, liquidity, capital and size and condition of the loan portfolio, but contain only limited information on individual business activities.

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[15] Network externalities and economies of scale in the payments business are additional reasons to project greater consolidation.

Table 10
Composition of operating revenue for the largest BHCs during 1996

Category of income	Combined totals, in billions of US$	As a percent of operating revenue	As a percent of assets
(1) Total non-interest income	62.4	44.5	2.32
Service charges on deposit accounts (in domestic offices)	9.5 *15.3% of total non-interest income*	6.8	0.36
Income from fiduciary activities	10.2	7.3	0.38
Trading revenue	7.9	5.6	0.30
Other foreign currency gains	–0.08	–0.06	–0.003
Other fee income	23.8	17.0	0.89
All other non-interest income	10.9	7.8	0.41
(2) Gross interest earned	181.2	129.3	6.75
(3) Gross interest paid	94.2	67.2	3.51
(4) Net interest income: (2) – (3)	87.0	62.0	3.24
(5) Provisions for loan losses	9.2	6.5	0.34
(6) Net-net interest income or net interest income less provisions for loan losses: (4) – (5)	77.8	55.5	2.90
(7) Operating revenue: (1) + (6)	140.2	100.0	5.22
Memo item: Total assets	*2,686.0*	–	–

Source: Y9C reports.

In the payments area, US banks record the amount of revenue earned through "service charges on deposit accounts in domestic offices" as one of the six designated components of non-interest income. In 1996, the twenty-five largest bank holding companies (BHCs) collected only $9.5 billion from fees on deposit accounts, compared with total combined non-interest income of $62.4 billion. At first glance, it appears that just 15.3% of non-interest income and a mere 6.8% of operating revenue, comes from payment services (Table 10). For two reasons the amount of "deposit account fees" understates revenue derived from payment services. First, some remuneration for payment services appears in other categories of non-interest income. Second, compensation for payment services is often received as foregone interest on deposits or extra interest on loans, rather than in the form of a fee, commission or other charge to a customer.

To establish the importance of transactions services, we give a comprehensive estimate of payment-driven revenue in this section. To gauge the amounts involved, we measure "missed" deposit account activity fees and fees for payment services provided outside of a deposit account. Then interest income earned as compensation for payment services is quantified. In making our estimates, we rely on information disclosed in the annual reports of the largest BHCs.[16] Particularly valuable is detailed information on the business activities that bring in non-interest income and the amounts earned. For example, the Chase Manhattan Corporation shows the sources of 88% of its non-interest income of $7.5 billion (Table 11). Disclosures of non-interest income, however, are not strictly comparable across banks, which imparts some imprecision to our estimates.

[16] During the past several years, BHCs have taken significant steps to improve their financial disclosures. Their efforts have been made in concert with initiatives by both public and private entities to promote advances in accounting, reporting and disclosure practices. See Bank for International Settlements (1994) and Edwards and Eller (1996).

Table 11
Disclosure of sources of non-interest income

	Categories of non-interest income	Amount earned during 1996, in millions of US$
1	Corporate finance and syndication fees	929
2	Trust, custody and investment management fees	909
3	Mutual fund fees	83
4	Other trust fees	184
5	Credit card revenue – from securitized revenues	318
6	Credit card revenue – all other	745
7	Service charges on deposit accounts	394
8	Fees for other financial services – commissions on letters of credit and acceptances	330
9	Fees for other financial services – fees in lieu of compensating balances	295
10	Fees for other financial services – mortgage servicing fees	204
11	Fees for other financial services – loan commitment fees	120
12	Fees for other financial services – other fees	580
13	Trading income – interest rate contracts	535
14	Trading income – foreign exchange contracts	444
15	Trading income – debt instruments and other	994
16	Other non-interest income – gains from equity-related investments	726
17	Other non-interest income – net losses on emerging market securities sales	–80
18	Other non-interest income – residential mortgage origination/sales activities	63
19	Other non-interest income – loss on sale of a building in Japan	–60
20	Other non-interest income – from credit card securitizations	23
21	Other non-interest income – all other revenue	344
Total non-interest income as defined in the Y9C report to the banking agencies		7,477
Memo: Securities gains		*135*
Total non-interest income as shown in the annual report to shareholders		7,512

Source: 1996 Annual Report of the Chase Manhattan Corporation.

7.1 Deposit account fees placed in the "other fee" category

In addition to those fees that a bank collects directly from its own deposit account customers, a bank charges fees for transactions initiated by customers of other banks or from the receivers of payments. Examples of these sources of fee income are debit card interchange fees and automated teller machine (ATM) interchange fees. Information on this type of non-interest income is, however, relatively sparse in annual reports. Most banks simply record the revenue in the residual subcategory "other non-fee income", although several cite electronic banking fees in explaining an increase in non-interest income from the previous year. Among the banks that do disclose a specific figure, these fees are on average equal to 28% of deposit account fees. Assuming that all the largest BHCs earn proportional amounts of revenue from fees for electronic banking services, we estimate that in aggregate these fees came to $2.6 billion during 1996, a nice supplement to the $9.5 billion in deposit account fees.

7.2 Fees for payment services provided outside a deposit account

Banks provide various payment services outside a deposit account relationship and consequently, they do not record the revenue earned from these services as "fees on deposit accounts". These services fall into two basic types: credit cards and payments processing. The transaction capabilities of credit cards must be

counted among the payment services that banks supply to retail customers. Non-interest revenue derived from the use of credit cards includes interchange fees and cardholder fees. A card-issuing bank may also earn fee income for servicing securitized credit card receivables, but analysis of these revenues will be deferred to a later section.

From total managed receivables, it appears that, in the data on credit card fees disclosed by the fourteen BHCs that clearly exclude revenue from servicing securitized receivables, these BHCs earned $3.1 billion of fee income, equivalent to 3.46% of managed receivables. By applying this percentage to the total volume of managed credit card receivables held by the top twenty-five BHCs, we estimate that the group earned a combined $5.4 billion. Credit card fees are, therefore, more than half as large as the revenue earned through fees on deposit accounts.

7.3 Fee income for securities handling and other processing services

Everyone is familiar with the fact that banks offer safekeeping, administration, reporting and transfers of money held in a deposit account. But they also furnish additional payment services to their corporate and institutional customers, including pension funds, mutual funds and endowments. These services involve safekeeping, administration, reporting and transfers of ownership and settling trades of securities and other assets held in a trust department account.[17] Additional services are performed on behalf of an issuer of debt or equity securities and wholesale or institutional customers through subsidiaries, including the processing of checks, airline coupons, remittances with their accompanying documents and debit card, credit card and other electronic banking transactions.

Nineteen of the twenty-five BHCs identify an amount of non-interest income earned by handling securities and performing related services. Eight of the nineteen BHCs specialize in wholesale services, producing them on a large scale and earning more from these services than they do from deposit account fees. Collectively for the nineteen BHCs, this business line brings in $6.5 billion of non-interest revenue, an amount that is almost three-quarters as large as their combined deposit account fees.

7.4 Interest income earned in return for payment services

An estimate of payment-driven revenue that only considers *non-interest* income whould understate the total amount of revenue brought in by payment services, because a component of *net interest* income is actually compensation for a payment service, not an extension of credit. Deposit account customers compensate banks for payment services not only by paying explicit account maintenance and activity fees, but also by foregoing interest on their deposits. Account holders earn no interest on demand deposits and earn below-market interest rates on deposits in checking and savings accounts. Interest substitutes for higher explicit fees. In an analogous way, credit card customers compensate banks for transactional services by paying interest above the cost of just the loan. Again, interest substitutes for explicit account maintenance and activity fees. Therefore, to construct a comprehensive figure for the contribution of payment services to operating revenue, we must break out some net interest revenue.[18]

To estimate the amount of foregone interest on deposit accounts, we first assume that all accounts that have payment capabilities, principally checkwriting privileges and immediate remote withdrawal, implicitly earn the overnight interbank (federal funds) rate. We also assume that foregone interest plus explicit fees paid by account holders equals all maintenance and activity costs incurred by a bank. Under these assumptions, in 1996 the top twenty-five BHCs earned $15.5 billion of foregone interest on $295.5 billion of demand deposits and an additional $13.3 billion of foregone interest on deposits of $502.6 billion in other accounts

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[17] Trust department services can be classified as master trust and custody, global custody, corporate trust and stock transfer.

[18] Studies of the aggregate demand for money recognize the phenomenon of foregone or implicit interest on deposit accounts. These studies estimate the amount of implicit interest earned on demand deposits for the purpose of calculating the opportunity cost of holding money (narrowly defined).

having payment capabilities. By comparison, $28.8 billion of interest foregone on deposit accounts is almost three times as large as the amount of fees collected on deposit accounts.

Implicit interest on deposits may seem extraordinarily large, but it must cover the sizable expenses of running a bank's branch network, whose primary purpose is to handle the transaction needs of household and small business customers. Some expenses are recovered by collecting fees on deposit accounts and on ancillary services offered at the branch office; the remainder must be recovered through foregone interest.

To estimate the extra interest revenue collected from credit card holders, we rely upon information disclosed on revenue earned for servicing securitized credit card receivables. In a securitization, most of the interest paid by cardholders passes to the holder of the security, who funds the loans and bears the credit risk. The card-issuing bank retains a smaller portion of the interest paid by cardholders. A card-issuer's revenue from securitized receivables serves as an estimate of the extra interest paid for payment services rendered through the account. In other words, this revenue equals the amount that cardholders would be assessed in explicit activity fees and maintenance charges on their account if interest were not used instead.

Ten of the twenty-two BHCs offering credit card accounts securitize part of their receivables and seven of those ten reveal detailed information on the volumes of their securitization programs and their impact on net interest income, provisions for loan losses and non-interest revenue. On average, securitization reduces net interest income by an amount equal to 8.33% of the dollar volume securitized. Smaller provisions for loan losses offset more than half of this reduction, 5.50% of the dollar volume securitized. The card-issuer keeps the remainder (plus a small residual), 3.05% and records the amount as non-interest income. This percentage is our estimate of extra interest paid on all credit card receivables. Applying the 3.05% estimate to the entire $156.1 billion of managed credit card receivables held by the whole group of twenty-five BHCs indicates that they collected $4.8 billion of extra interest as compensation for payment services.

Because a residual estimates the extra interest paid on credit card balances, it is likely that it represents more than just the amount paid to cover the costs of producing payment services. The estimate of extra interest may capture excess profits from credit card operations, an implicit charge for the unused portion of the cardholder's credit line, the cost of maintaining a loan account and compensation for any residual credit risk retained by a card issuer. For this reason, the estimate of $4.8 billion should be considered the upper bound of what cardholders pay in extra interest.

7.5 Summing up

By adding up all the pieces of revenue identified and estimated above, we find that payment services contributed as much as $57.6 billion or 41.1%, of the combined operating revenue of $140.2 billion earned by the twenty-five largest BHCs (Table 12). Payment-services brought in $24.0 billion of fee income; interest revenue accounted for a larger amount, between $28.8 billion and $33.6 billion. Among categories of payment services, deposit accounts generated the largest amount of revenue, $40.9 billion, although only $12.1 was recorded as service charges. Credit cards brought in between $5.4 billion and $10.2 billion and securities handling and other processing services provided another $6.5 billion.

The importance of payment-driven revenue varies considerably across individual banks. Table 13 ranks the top twenty-five banking organizations, not by size, but by share of operating revenue that is contributed by the payments business. The bank that is most dependent on its payment business earns three-quarters of its operating revenue from this business line. The magnitude of payment-driven revenue reflects the bank's specialization in both credit cards and securities processing. Several other banks among the top twenty-five also earn more than 10% of their operating revenue from either credit cards or securities processing.

Table 12
Summary of sources of operating income derived from payment services by the twenty-five largest bank holding companies

Category	Revenue earned	Comment
Fees on deposit accounts	$9.5 billion	As recorded in the Y9C reports
Fees on deposit accounts recorded in "other fees"	$2.6 billion	Estimated from a sample of BHCs
Credit card fees	$5.4 billion	Estimated from a sample of BHCs; excludes securitization revenue
Securities handling and processing	$6.5 billion	Amount disclosed in annual reports
Interest foregone by deposit account holders	$28.8 billion	Estimated; $15.5 billion from demand deposits and $13.3 billion from NOW, saving and money market accounts
Extra interest paid by credit card holders	As much as $4.8 billion	Estimated from a sample of BHCs
Total	Between $52.8 billion and $57.6 billion	Between 37.7 and 41.1% of operating revenue
Memo items:		
Amount of revenue earned in the form of:		
non-interest income	*$24.0 billion*	*38.5% of non-interest income*
net interest income	*Between $28.8 billion and $33.6 billion*	*Between 37.0% and 43.2% of net-net interest income*
Amount of revenue earned from:		
deposit accounts	*$40.9 billion*	
securities handling	*$6.5 billion*	
credit cards	*Between $5.4 billion and $10.2 billion*	

7.6 Implications

The very substantial amount of payment-driven revenues means that the performance of transaction services is an integral activity of the banking sector and is on an equal footing with credit services. Consequently, the production and distribution of payment services should be incorporated in both theoretical and empirical research on banking. By excluding payment services in a model of a bank, a researcher may be overlooking one of its defining characteristics. In fact, economists commonly offer two explanations for the prominence of commercial banks: specialization in information-intensive lending and provision of liquidity. But neither rationale explains why commercial banks produce payment services on a large scale or why they offer payment services together with deposit-taking and lending to relatively small-sized borrowers. An integrated theory of commercial banking is called for, one that identifies what banks need to do to succeed in providing payment services as well as taking deposits and intermediating credit.

The importance and sources of payment-driven revenue also suggest that transaction services are now what make banks special and justify their supervision and regulation as well as the safety net stretched beneath them. In looking at US financial history, Congress established the deposit insurance system in the 1930s primarily to keep illiquid banks in operation and support the availability of bank credit to the nonfinancial business sector. But more than sixty years later, with many varied sources of credit available to households and firms, the preservation of bank lending would create less concern and provide weaker justification for the safety net. In contrast, with a larger role played by securities issuance and institutional investors in channeling the economy's saving to business and household borrowers, timely clearing and settlement of trades in foreign exchange, securities and other instruments are absolutely necessary. Consequently, one could argue that to an increasing extent the safety net exists in order to come to the aid of a bank that processes large volumes of payments.

Table 13
Sources of payments-driven revenue across bank holding companies

Top 25 BHCs ranked by share of payments-driven revenues	Payments-driven revenue	Deposit account revenue	Credit card revenue	Securities processing revenue	Operating revenue, in billions of US$
	as a percent of operating revenues				
1	74.9	39.1	10.4	25.4	3.4
2	58.3	33.5	22.0	2.8	5.2
3	56.1	40.2	3.6	12.3	3.0
4	54.9	40.4	14.5	–	2.2
5	49.6	44.7	4.8	0.1	6.7
6	49.0	39.5	3.7	5.8	2.8
7	47.6	34.7	12.9	–	6.2
8	47.4	43.3	4.1	–	2.5
9	46.8	40.2	5.9	0.7	9.4
10	46.1	31.8	6.7	7.6	2.6
11	44.4	21.0	10.4	13.0	14.8
12	44.0	29.1	4.4	10.6	3.3
13	43.5	41.0	2.5	–	2.5
14	43.4	37.4	6.0	–	6.9
15	42.5	37.9	3.9	0.7	5.3
16	42.4	37.8	4.4	0.1	13.6
17	39.7	37.5	1.7	0.5	2.3
18	37.6	32.6	2.0	3.1	3.8
19	37.0	32.3	3.1	1.6	3.8
20	33.9	12.6	15.3	6.0	18.3
21	33.0	29.9	2.6	0.6	3.6
22	29.3	26.4	1.7	1.2	5.9
23	28.4	7.9	0.0	20.5	3.9
24	20.3	20.3	0.0	–	1.4
25	4.5	1.9	0.0	2.6	6.8

7.7 Payments and financial stability

Looking forward, the payments franchise may represent a growing proportion of banks' operating income. First, if current trends persist, trading of financial instruments will grow and banks will handle larger volumes of transactions and earn more fee income. Second, as growing proportions of household-to-business and business-to-business payments are converted to electronic formats, bank customers will make and receive payments faster and more conveniently. For improved payment services, banks should be able to raise their fees. And because payment-driven revenues are basically noncyclical, their growth should stabilize income and profitability.

At the same time, banks take substantial business risks whenever they make important decisions regarding the payments business. A larger share of non-interest expense is now devoted to investments in technology, which in the long run may turn out to be unpopular or cost-ineffective. In addition, banks must decide which services to offer and on what scale, what hardware and software investments to make, whether to produce in-house or to outsource some aspects of these services and which partners to take on in joint ventures. The business risks in the payments area have dimensions that differ from those in lending or trading, but they are present nonetheless. On this point, a bank executive stated that, in his opinion, making

the wrong decisions on technology plans was a greater threat to his bank's long-term success and survival than credit risks posed by lending decisions.

8. Summary and conclusions

The US banking industry is not only consolidating, but is also undergoing a multifaceted restructuring. Besides merging among themselves, banks are expanding their product lines and geographic reach (in some cases, internationally) and revamping their operations. Banks are working on several fronts simultaneously because many fundamentals have shifted for them and many needs must be addressed. The varied actions taken by the banking sector to address these needs would be expected to have multiple effects on the stability of the financial system. Some changes should promote stability; for instance, efforts to improve product and geographic diversification and derive a larger share of revenue from less cyclical payment services should make bank profitability more resistant to local or national business cycles. Other developments, however, may hurt stability. By operating in a more competitive environment, banks may take more risk and experience a higher rate of failure, although the FDIC Improvement Act of 1991 and the provisions for prompt corrective action should be working in the opposite direction. And because banks are adopting new and unproven technologies while still facing a declining demand for traditional depository and lending services, more disorder could occur. These prospects for stability were discussed in the context of consolidation, restructuring, the expanding reach of geographic markets and the payments business.

As stated at the outset of this paper, the transformation of the banking sector is part of a broader development: the increasing prominence of institutional investors and the receding role of patient intermediaries, not only commercial banks, but also insurance companies and traditional employer-sponsored pension plans. A contraction of banks' lending activities may signify a return to their roles as providers of payment services and managers of liquidity. At the same time, a bigger role for institutional investors, always focused on the short-run performance of the portfolios they manage, could lead to more short-run volatility in the financial markets.

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