The Future of Banking in America

The Evolving Role of Commercial Banks in U.S. Credit Markets

*by Katherine Samolyk**

SUMMARY

How important a role do commercial banks play in funding nonfinancial borrowing? Ten years after the end of the industry's most significant crisis since the Great Depression, does banking remain a major player in financing the nation's economic activity? This paper examines the evolving role that commercial banks play in U.S. credit markets.

The available data reveal several consistent patterns over the past two decades. First, there has been a permanent increase in the overall borrowing capacity in credit markets—in other words, an increase in the credit market pie associated with the functioning of the economy. This increase was associated with a decline in the share of domestic nonfinancial borrowing that is directly funded by commercial banks. When debt growth leveled off in the early 1990s, so did commercial banks' share of this credit-market pie. Banks' smaller share of the credit-market pie reflects a dramatic shift in the way loans to households and businesses are being financed. Specifically, asset securitization (the pooling of loans and their funding by the issue of securities) has allowed loans that used to be funded by traditional intermediaries, including banks, to be funded in securities markets.

The data also reveal, however, that commercial banks still play a significant role in funding business borrowers: we estimate that the share of nonfinancial business borrowing that commercial banks fund on their balance sheets has not declined notably in five decades. Nevertheless, there has been a clear shift in how banks lend—a shift from shorter-term lending not secured by real estate to loans collateralized by business real estate. This shift may reflect banks' continuing comparative advantage in real estate lending, a form of lending less well suited to the standardization necessary for asset securitization.

With respect to borrowing by households, in contrast, we find that the securitization of home mortgages and—more recently—of consumer credit has reduced the extent to which these types of loans are directly funded by commercial banks (and savings institutions). This finding is consistent with the broadening of household-sector credit markets over time; longer-term increas-

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es in borrowing by households have generally not been associated with greater intermediation through banks. The securitization trend, however, has had a more severe effect on savings institutions than on commercial banks.

At the same time, the commoditization of credit markets—that is, the standardization, unbundling, and repackaging of payments and risks associated with credit flows—makes it harder to measure the importance of banks as well as other intermediaries in providing credit-related services. Balance-sheet data on who is funding loans can be a poor proxy for who is providing the financial services associated with the credit flows. Commercial banks, particularly larger institutions, provide significant services in originating, servicing, and enhancing the liquidity and quality of credit that is ultimately funded elsewhere. Hence, market-share measures based on balance-sheet data are likely to understate the importance of banks to a greater extent than even a decade ago. The provision of financial services is, however, reflected in bank earnings. And indeed, when one looks at income-based measures of market share, one does not see any evidence of a secular decline in the importance of commercial banking.

Thus, the conclusion of this study is that although the role of commercial banks in U.S. credit markets has certainly evolved, banks remain a critical part of the modern flow of funds that has broadened the availability of credit in the U.S. economy.

Introduction

Banks have historically been viewed as playing a special role in financial markets for two reasons. One is that they perform a critical role in facilitating payments.[1] The other is that they have long played an important, although arguably less exclusive, role in channeling credit to households and businesses. Commercial banks, as well as other intermediaries, provide services in screening and monitoring borrowers; and by developing expertise as well as diversifying across many borrowers, banks reduce the costs of supplying credit. Thus, in their role as lenders, banks are often not merely buying someone's debt; rather, they are providing significant financial services associated with extending credit to their customers.[2] And to the extent that investors want to hold bank liabilities, banks can fund borrowers directly.

In the early 1990s, as the U.S. banking industry emerged from its most significant crisis since the Great Depression, policy makers were asking whether the importance of banks in financing economic activity had become permanently diminished.[3] Now, ten years later, the share of domestic debt funded on commercial-bank balance sheets stands at just over 20 percent, down from 30 percent three decades ago. Commercial bank loans now account for only 60 percent of short-term borrowing by nonfinancial businesses, compared with 75 percent in the mid-1970s.[4]

Even now, therefore, when profitability and other measures of performance indicate that banking has rebounded from the crisis, the role of banks in U.S. credit markets remains under scrutiny. Other types of financial intermediaries and financial instruments appear to have become more important in channeling funds to businesses and households. Stories about competition from other segments of the financial-services industry continue to be reported in the popular press. For

[1] Banks issue liquid deposit accounts that can be easily used to make payments; banks also make the payments. The special liquidity of bank liabilities and the extent to which they serve as a means of payment are reflected in the fact that deposit liabilities are included in various measures of the money supply. Seminal works discussing the special role of money and banks include Gurley and Shaw (1960), Tobin (1963), Fama (1980), and Diamond and Dybvig (1983).

[2] Two frequently cited papers that analyze the importance of banks as lenders are Diamond (1984) and Fama (1985). Of course, banks can and do hold credit-market instruments issued by others–including securities issued by the U.S. government and government agencies–although in some sense this involves less of a provision of banking services per se. When a bank invests depositors' funds in corporate or government securities, it is not providing the same banking services as when it originates a loan. Rather, the bank is simply buying securities that were issued in (and could easily be resold in) direct capital markets. Mutual funds, as well as individual investors, can do the very same thing.

[3] Indeed, one decade ago, the title of the May 1994 Federal Reserve Bank of Chicago Conference on Bank Structure and Competition was "The Declining [?] Role of Banking."

[4] These market-share measures are the author's estimates based on Federal Reserve Flow of Funds Account data and are described in more detail below.

example, according to a fairly recent report in the *Wall Street Journal*,

> The financial services arm of General Electric Co. [GE Capital] illustrates how nontraditional lenders are taking over from banks as suppliers of credit to big slices of the U.S. economy. . . . Twenty years ago, banks and thrifts supplied 40% of the economy's credit. . . . Today it is down to 19%. Housing financiers Fannie Mae and Freddie Mac own about as many residential mortgages as all commercial banks combined.[5]

This paper assesses the evolving role of commercial banks in U.S. credit markets during the past decade. We use available data to quantify the importance of banks as credit providers—that is, their "market share"—taking a historical perspective in assessing credit-market trends. Not surprisingly, we find that the importance of banks depends on the markets one chooses to consider and on how one measures banking services. However, some consistent patterns emerge. From a historical perspective, we now see that the debt buildup of the 1980s was actually a permanent increase in the volume of debt associated with economic activity in the United States. In other words, the credit-market pie to be divided up among financial-service providers is now substantially larger than it was 20 years ago. And although overall the provision of credit by banks has kept pace with the growth of the economy, the capacity of the broader financial sector has grown by much more. Accordingly, the share of our economy's debt that commercial banks fund directly has fallen relative to the growth of the credit-market pie, reaching its low point in 1993 and then stabilizing.

An important dimension of these trends that is not always emphasized is the dramatic change in the way credit flows in our economy are being funded. Traditionally, intermediaries funded portfolios of loans (and bonds) by issuing very different types of liabilities (mainly deposits and insurance and pension liabilities) to investors. But the growth of credit-market activity in our economy during the past two decades has been associated with the rise of intermediation in the form of asset securitization, referring to the pooling of loans and their funding by the issue of securities. Asset securitization reflects a fundamental transformation of loan markets, particularly those where households borrow. Home-mortgage and consumer-credit markets have become commoditized, in the sense that these loan products have become more standardized commodities, allowing the attendant credit-related services to be unbundled, repackaged, and provided by a variety of financial-service providers. Moreover, standardization extends beyond the terms of the loan contracts to the underwriting and pricing process, in which characteristics of the borrower are increasingly linked to the use of statistical models in extending and pricing credit.

The commoditization of credit often generates more layers of intermediation between investors and the borrowers who ultimately receive the funds. Intermediation funded by issues of securities is often "re-intermediated" (for example, through mutual funds, insurance companies, or pension funds). The layering makes it harder to quantify the importance of banks (as well as other intermediaries) in channeling credit from savers to borrowers because it makes it more difficult to identify who is ultimately funding certain types of loans. And quantifying the value-added of the additional layers of intermediation is difficult as well.

Nonetheless, according to some fairly standard measures, we find that commercial banks still play a significant role in channeling credit. With respect to business lending, we find that not only are banks important for small business borrowers, but they also remain remarkably important for all business borrowers: we estimate that the share of nonfinancial-sector business borrowing that commercial banks fund directly has not declined notably in five decades. There has, however, been a dramatic shift in how banks lend, a shift from shorter-term lending not secured by real estate to loans collateralized by business real

[5] Ip (2002).

estate. This shift may reflect banks' continuing comparative advantage in real estate lending—a form of lending less well suited to the standardization necessary for asset securitization.

With respect to borrowing by households, we find that the securitization of home mortgages and—more recently—of consumer credit has reduced the extent to which these types of loans are directly funded by commercial banks (and savings institutions). This finding is consistent with the broadening of household-sector credit markets over time; longer-term increases in the debt capacity of the household sector have not tended to be associated with greater intermediation through banks. The securitization trend, however, has had a more severe effect on savings institutions than on commercial banks.

The evolution of U.S. credit markets and the changing role of commercial banks suggest that on-balance-sheet market-share measures understate the importance of banks to a greater extent than even a decade ago. Commercial banks, particularly larger institutions, often provide important credit-related services to borrowers that are ultimately funded elsewhere, but the provision of these services is reflected in bank earnings. Indeed, when one looks at income-based measures of bank market share, one does not see evidence of a secular decline in commercial banking. Thus, although the importance of banks depends on how one defines banking, from a variety of perspectives the commercial banking industry remains far from extinct as a force in credit markets.

The next five sections of the paper discuss the changing nature of credit-market flows and the implications of the changes for using balance-sheet data to measure bank market share; an overview of the historical trends that culminated in the apparent decline of commercial banking during the 1980s and early 1990s; what researchers had to say about this apparent decline; credit-market trends from the early 1990s to the present; and alternatives to balance-sheet-based measures of bank market share. A final section summarizes our findings and their implications for the future role of commercial banks in U.S. credit markets.

Credit Market Concepts and Measurements

To examine trends in the role of commercial banks in U.S credit markets, much of this paper uses 50 years of quarterly data from the Federal Reserve Board's Flow of Funds Accounts (FFA). These accounts provide a detailed and comprehensive picture of quarterly credit flows and balance-sheet outstandings across various sectors of the U.S. economy since the early 1950s.[6] They include a wealth of detail on specific types of financial institutions and financial instruments; hence, they allow one to study the evolution of the financial-services industry over time. However, with these data, one's findings depend on the choice of what to measure. Hence, we begin by providing a conceptual framework for thinking about how to measure the role of commercial banks in U.S. credit markets.

Standard academic textbooks on banking often include a diagram showing how credit markets traditionally worked—that is, how funds from primary investors (those having accumulated wealth, i.e., savers, lenders) are channeled to primary borrowers (those who need external finance to fund their expenditures).[7] As figure 1 indicates, primary borrowers include households seeking mortgage or consumer loans; federal, state, and local governments financing their outstanding debt; and nonfinancial businesses borrowing to finance their business activities (larger publicly traded corporations also obtain external finance in equity markets). These borrowers are classified in the FFA as nonfinancial sectors. Primary investors technically consist of the same groups, but it is ultimately private individuals—that is, the house-

[6] The Flow of Funds Accounts (FFA), the only truly comprehensive data on broad U.S. financial flows, use a wide range of data sources to produce a consistent set of quarterly estimates of financial flows and balance-sheet stocks for various sectors of the U.S. economy. See Teplin (2001).
[7] For example, see Mishkin (2003).

hold sector—that accumulate wealth (save) and need to invest it.

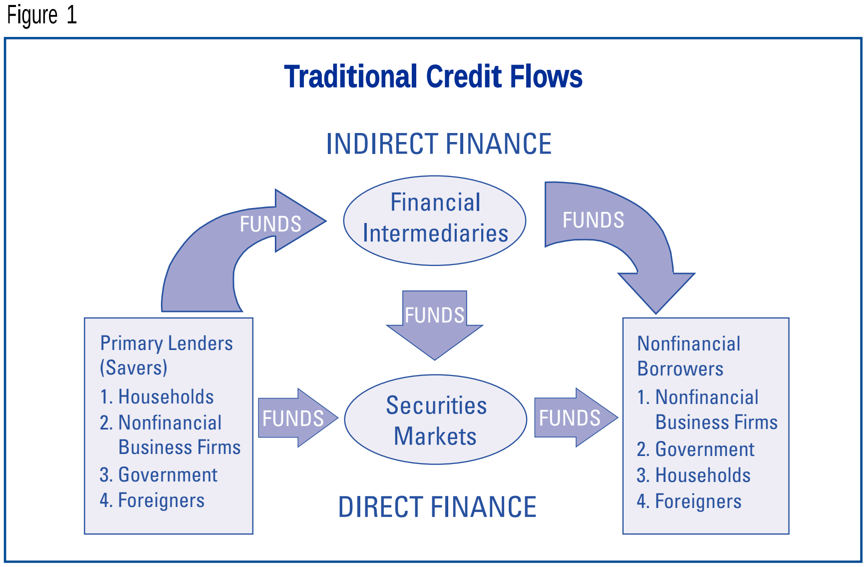
The financial sector, which facilitates external finance, tends to be conceptually divided into "direct credit markets," where investors directly buy and hold securities issued by businesses or governments, and "indirect credit markets," where intermediaries pool the funds of many investors to fund a pool of borrowers (see figure 1). Direct finance involves a brokerage function but does not require intermediation per se (for example, when an investor buys a U.S. Treasury security, even from a bank, the transaction does not involve intermediation). In contrast, a key feature of indirect finance is that it involves the funding of financial assets by issuing to investors "indirect" claims on these assets. These indirect claims can have very different characteristics (in terms of promised payments, liquidity, and default risks) from the assets that they are funding. The process by which a pool of financial assets can be funded by issuing claims having different payment streams is referred to as asset transformation (Gurley and Shaw [1956]; Tobin [1963]).

The nature of credit markets 50 years ago helps to explain some important conventions in the FFA. Specifically, the accounts were designed to measure the flow of credit to nonfinancial-sector borrowers and the flow's link to economic activity. To this end, the FFA defined the set of credit-market instruments to include the types of claims that nonfinancial-sector borrowers use to obtain financing in formal credit markets. These include loans from intermediaries as well as bonds and short-term paper issued in securities markets.[8] The traditional indirect liabilities issued by intermediaries (deposits, and claims on insurance and pension funds) are not credit-market instruments because nonfinancial borrowers do not issue these types of claims. As we discuss throughout this study, financial intermediaries can, and increasingly do, raise funds by issuing credit-market debt—most often securities—in their role as financial middlemen. In the latter case, credit-market debt issued by the financial sector is used to fund other credit-market debt on the intermediaries' balance sheets.

The distinction between total debt and nonfinancial-sector debt was not as important 50 years ago. As summarized in table 1, credit markets were somewhat simpler then: commercial banks funded

[8] The FFA define credit-market debt to include corporate and foreign bonds, U.S. government securities, tax-exempt debt and securities, residential and business mortgages, consumer credit, bank loans not elsewhere classified, open-market paper (commercial paper and banker's acceptances), loans to businesses from nonbank financial intermediaries, loans from the U.S. government or sponsored credit agencies, foreign loans to U.S. nonbank borrowers, and customer liabilities on acceptances. Credit-market debt does not include security credit, trade credit, and other miscellaneous financial claims.

Figure 1



their lending by issuing checking and savings accounts; savings institutions were largely home mortgage lenders that issued saving accounts; insurance companies issued insurance polices and defined-benefit pension-plan contracts, funding future payments on these contracts by investing the premiums in securities and commercial mortgages. The financial sector did not raise funds by issuing credit-market debt to a great extent; in the early 1950s, only 2.5 percent of total credit-market debt was issued by financial-sector firms.

In that world, intermediation between a borrower and a lender generally involved one middleman and tended to involve a high degree of asset transformation. Notably, commercial banks funded relatively illiquid, unmarketable loans by issuing extremely liquid demandable deposits. To a large extent, the high degree of asset transformation reflected the relatively high costs of processing and tracking information about financial transactions.

Asset securitization as a funding mode did not begin until the 1970s, when federally sponsored agencies began to pool home mortgages and issue mortgage-backed securities. Asset securitization by the private sector did not become significant until the mid-1980s. And although mutual funds have a 60-year history, until the 1980s they accounted for only small shares of the financial assets held by investors. Until then, investors who wanted to hold stocks and bonds tended to hold them directly.

A prominent theme of this paper is that advances in the application of information technologies in the financial-services industry have dramatically changed both the nature of the asset transformation taking place in U.S. credit markets and the types of indirect liabilities that are being used to fund nonfinancial borrowers. In recent decades, the volume of credit-market debt—specifically, marketable securities—issued by financial firms has grown dramatically. Currently, a third of total outstanding credit-market debt is now issued by financial intermediaries (see figure 7), and asset securitization accounts for a large share of this debt. Thus, as lower costs make it increasingly feasible to standardize, unbundle, and repackage

Table 1

Credit Markets in the 1950s

Sector	Primary assets held	Financial source of funding
	INDIRECT FINANCE	
Commercial banks	U.S. Treasury securities Nonmortgage business loans (C&I, Ag) Business mortgages Home mortgages Consumer credit	Zero-interest bearing checking accounts Passbook savings accounts
Savings institutions	U.S. Treasury securities Home mortgages Consumer credit	Passbook savings accounts
Finance companies	Non-mortgage business loans Consumer loans	Bank loans Corporate bonds and paper
Insurance companies Pension funds	U.S. Treasury securities Corporate bonds State and local government securities	Contingent claims of policy holders Defined benefit pension claims
	DIRECT FINANCE	
Nonfinancial holders	Corporate bonds and paper U.S. Treasury securities State and local government securities	

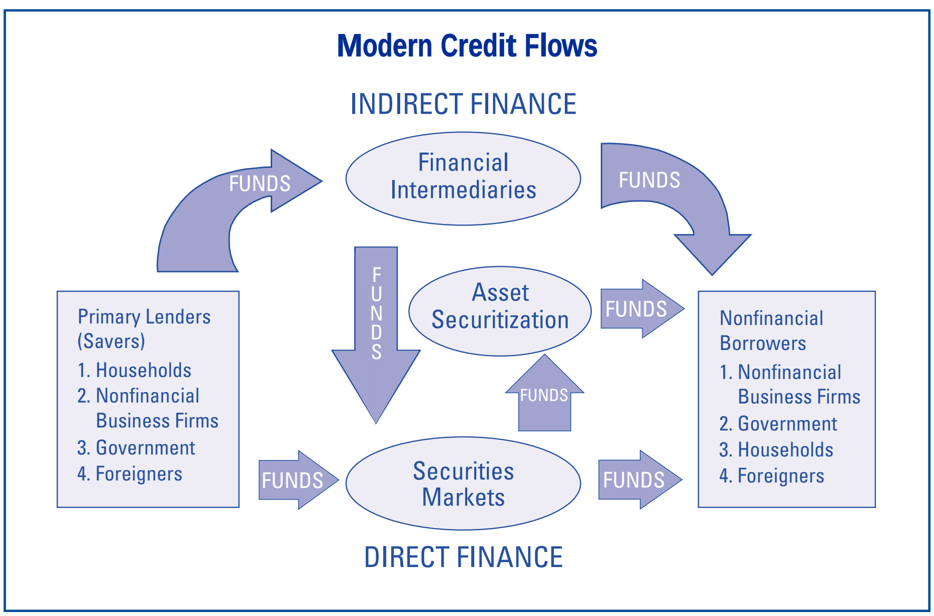
credit flows and risks, loans that used to be funded by traditional lenders are increasingly being funded in securities markets. Moreover, the asset-backed securities are often bought by other intermediaries to be held in their portfolios. Thus, unlike the traditional flows of credit as diagrammed in figure 1, credit flows to nonfinancial borrowers in U.S. credit markets increasingly involve more complicated layers of intermediation between nonfinancial "savers" and nonfinancial "borrowers" (figure 2). When financial intermediaries hold the claims issued by other financial intermediaries, an extra layer of intermediation is created. For example, when a mutual-fund portfolio includes commercial paper or bonds issued by a finance company or asset-backed securities issued to fund consumer loans, there are two layers of financial intermediation between the consumer who is borrowing and the mutual-fund investor.[9] It is certainly possible for there to be more than two layers of intermediation.

The increasing complexity of credit-market flows raises methodological issues about how to measure bank market share. One very basic issue is simply that looking at total credit-market debt increasingly overstates the amount of borrowing associated with economic activity because a growing share of this total debt comprises claims issued by financial intermediaries just to fund other debt.

In this regard, the focus on nonfinancial borrowing is useful because it allows us to characterize the role of banks in facilitating the flow of credit to the economy and to avoid double-counting debt issued purely in the context of intermediation. But even with this focus, the growing issuance of securities by financial firms has made measurement issues more prominent: source data for the FFA do not generally allow one to ascertain the extent to which corporate bonds or commercial paper are issued by nonfinancial firms as opposed to financial firms. Thus, in measuring funds advanced to nonfinancial businesses by

[9] Here it is useful to remember that traditional financial-intermediary liabilities in the form of deposits, mutual-fund shares, and accrual of pension and insurance fund reserves are not counted as credit-market debt; hence, they do not contribute to the double counting of debt.

Figure 2



banks, mutual funds, and other holders of corporate debt, we estimate the shares that are nonfinancial issues.[10]

Post-War U.S. Credit-Market Trends through the Early 1990s

To understand the dramatic transformation of U.S. credit markets, it is necessary to look at historical trends leading up to the banking-sector problems of the 1980s and early 1990s and the apparent decline in the importance of commercial banks as credit providers.

From the 1950s through the early 1980s, domestic nonfinancial borrowing (by households, nonfinancial businesses, and governments) grew roughly at the same rate as economic activity (measured in terms of economic output—Gross Domestic Product, or GDP). Indeed, the ratio of debt owed by domestic nonfinancial sectors to GDP was remarkably stable—so stable that it became a "stylized fact" used by economists in analyzing macroeconomic issues such as the effects of federal deficits (Friedman [1978], Friedman [1980]).[11] But although total nonfinancial debt grew roughly at the same pace as overall economic activity, borrowing by particular nonfinancial sectors did not grow at the same rate: the share of borrowing by households and nonfinancial businesses grew faster as the share of debt owed by the federal government (accumulated during WWII) declined.

During this time, the number of commercial banks in the United States was growing; thus, the industry continued to be made up of a large number of banks that tended to be very geographically localized (partly because of branching restrictions). Banks also faced public policies that restricted entry, oversaw mergers, and regulated permissible activities.[12] On the liability side, commercial banks were limited in terms of the types of liabilities they could issue and the rates they could pay depositors. They were generally relegated to the business of making (primarily) business loans and providing transaction accounts (or close substitutes) in fairly localized areas. They were also an important funding source for the federal government. Thus, for investment banking and insurance services, individuals and corporations had to go to other financial-service providers. The phenomenon of the bank holding company was a response to restrictions on the scale and scope of banking. A larger banking organization could be formed if banks were held as affiliates, and if nonbank financial firms were held as affiliates, the holding company could expand the scope of its activities to encompass certain permissible lines of financial services. Of course, as holding companies evolved, they too fell under regulatory scrutiny.[13]

The interplay that always exists among policy, regulation, and financial-market trends was evident during this three-decade period, particularly with respect to interest rates on deposit accounts. Rates on these accounts were regulated, but in 1962 the marketable large certificate of deposit (CD) was created to circumvent interest-rate ceilings and enable banks to pay market rates to attract funds. On the asset side of the balance

[10] So, for example, when looking at the commercial banking sector to measure the share of nonfinancial-sector debt that it is funding on the balance sheet, we estimate the share of the banking sector's holdings of commercial paper that are nonfinancial issues. Specifically, we use the share of outstanding commercial paper issued by domestic nonfinancial corporations as an estimate of the share of commercial banking's holdings that consist of nonfinancial issues. The same method is used to estimate holdings of nonfinancial corporate bonds.

[11] For an analysis of debt and money growth in the U.S. prior to 1950, see Gurley and Shaw (1957).

[12] Permissible activities were severely curtailed because of the bank failures of the 1930s, but the decentralization of the industry stems more broadly from a historical distrust of both centralized political control and concentrated market power. The dual banking system allowed banks to choose whether to be chartered by state agencies or by the Comptroller of the Currency (the choice of charter determined who would regulate a bank). Interstate banking was prohibited by the McFadden Act, and states themselves regulated intrastate branching. The Glass-Steagall Act prohibited banks from engaging in investment banking activities. For a discussion see Wheelock (1993).

[13] The Bank Holding Company Act of 1956 made all multibank holding companies subject to regulation by the Federal Reserve Board and prohibited further interstate holding company acquisitions. In 1970, amendments to this act reined in the permissible activities of one-bank holding companies, which had proliferated as a means of circumventing regulations imposed by the 1956 act. One effect of these amendments was to remove any disincentives for organizations to acquire multiple bank affiliates (albeit within the home state), which they did. For a provocative assessment of the 1970 holding company amendments as well as a lively overview of post-war U.S. banking history, see Chase (1994).

sheet, after credit crunches in the late 1960s threatened the availability of bank credit to commercial firms, the commercial-paper market became considerably more active (Judd [1979]); in effect, banks were making fewer loans to prime corporate clients.[14]

Through the mid-1970s, commercial banks continued to be special both in their role as lenders and as a transmission mechanism for the implementation of monetary policy (Friedman [1981], Fama [1980], Wojnilower [1980]). Of all the financial intermediaries issuing claims to raise funds from investors, commercial banks were the only ones allowed to issue demand deposits that could be used as a direct means of payment, although demand deposits could pay no explicit interest.[15] Meanwhile, for most businesses, the costs of direct finance—that is, the raising of money by issuing and placing bonds or commercial paper—were prohibitive enough that their most attractive source of funds remained commercial banks. And of course commercial banks, as well as savings institutions, were afforded federal deposit insurance. Hence, despite regulatory restrictions, periodic credit crunches, and economic downturns, the U.S. commercial banking industry performed quite well in the three decades following WWII. And although commercial banks' share of nonfinancial-sector debt dipped slightly as the war-related federal debt was drawn down,[16] it rebounded as borrowing by households and businesses increased during the 1960s and early 1970s (see figure 3).

[14] In the mid-1960s the term *credit crunch* was coined to refer to periods when nominal interest rates rose above regulatory ceilings and banks faced disintermediation as depositors withdrew funds to earn higher returns available in direct credit markets. For discussions, see Burger (1969) and Wojnilower (1980).

[15] The other direct means of payment was cash held by the public. Savings institutions issued passbook savings accounts, which paid interest but the rates they could pay were subject to ceilings (and after 1962, savings institutions also issued CDs). Commercial banks, too, could issue passbook savings accounts, which were subject to Regulation Q interest-rate ceilings. Although savings institutions could issue close substitutes for money (passbook savings accounts with liberal withdrawal terms), these institutions had to maintain a high ratio of residential mortgage lending to total lending in order to qualify as a thrift institution. Meeting the qualified-thrift-lender test allowed a savings institution to borrow at Federal Home Loan Banks, which were an important source of funding during credit crunches.

[16] Commercial banks held large amounts of government debt in their portfolios in the post-WWII years.

With the mid-1970s came a severe recession paired with high inflation; however, relatively few banks failed. The number of commercial banks (and banking organizations) was still increasing, although at a slower pace than banking assets. Thus, although there were more banks, banks were also, on average, getting larger as the industry established more branches (Savage [1982], Rhoades [1985], Amel and Jacowski [1989]). Banks were also becoming increasingly "complex" in terms of their off-balance-sheet activities (such as issuing standby letters of credit that promise to pay in the event of nonpayment of a third party), which caught the attention of policy makers and researchers at the time because of their implications for bank safety and soundness (Lloyd-Davies [1979]; Wolkowitz et al. [1979]; Goldberg and Lloyd-Davies [1985]; Benveniste and Berger [1986]).

At the end of the 1970s, the pace of financial-market change escalated significantly (Simpson [1988]; Berger, Kashyap, and Scalise [1995]). High nominal interest rates, ceilings on the interest that could be paid on deposits, and better information processing made the formation of money-market mutual funds a cost-effective proposition (Mack [1993]).[17] These funds added to the competition associated with the creation of NOW (Negotiable Order of Withdrawal) accounts by savings institutions in the mid-1970s.

Ultimately, deregulation was implemented in the 1980s to allow banks to compete more effectively: interest-rate ceilings were raised (and were later eliminated), and commercial banks (and thrifts) were allowed to offer a wider range of deposit accounts to attract depositors. But in the meantime, evolving financial technologies were permanently altering the way financial markets channeled capital to investment opportunities in the U.S. economy. Technical innovations in information processing reduced the costs associat-

[17] These funds–which held very safe, liquid, money-market assets; maintained par value for their shares; and allowed some transaction privileges–became a popular alternative to bank deposits. They lack deposit insurance but also carry fewer regulatory costs.

ed with financial transactions, and the result was a proliferation of new products and new providers of financial services, as well as the growth of existing ones. In particular, asset securitization became an increasingly important means of funding loans that had been traditionally funded by banks.[18]

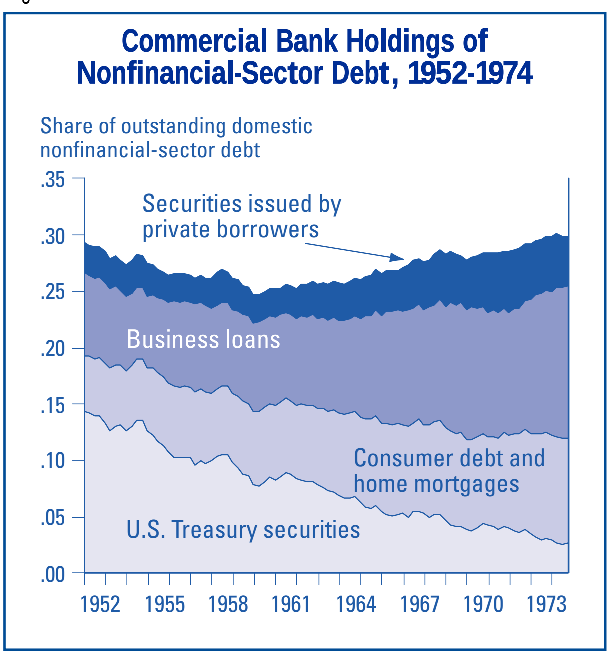
As noted above, the origins of asset securitization can be traced to the pooling and funding of mortgages by the government-sponsored agencies involved in the secondary mortgage market. But by the late 1980s, securitizations of loans by private asset-backed-securities (ABS) issuers had become a viable means of funding other types of loans, such as consumer loans.

On the liability side, financial-sector development in the 1980s also increased the competition that banks faced (Simpson [1988]). Depository-institution deregulation allowed savings institutions to issue the same types of deposits as banks. But more significantly, a growing mutual-fund industry in tandem with the regulatory shift toward defined-contribution pension plans served to channel the funds of smaller investors into direct debt (and equity) markets. Not surprisingly, it has been argued that the mutual-fund industry helped to reduce the role of depositories in credit markets (see Mack [1993] and Fortune [1997], for example).

The evolution of financial-market technologies on both sides of the balance sheet contributed to a dramatic increase in credit flows to nonfinancial businesses and households, even while the federal government was running large deficits (figure 4). After three decades of relative stability, nonfinancial-sector borrowing increased sharply as a ratio to GDP, from about 1.3 in 1981 to more than 1.8 by 1989. Financial intermediation—including a growing volume of securitized assets—increased in tandem with the economy's appetite for debt. From the perspective of researchers and policy makers at the time, the debt buildup was of great concern, particularly the question of whether it was a debt bubble that was going to burst in an economically detrimental fashion (Federal Reserve Bank of Kansas City [1986]).[19] In addition, the transformation of the asset menu available to investors through banks and other intermediaries disrupted the historical relationships between monetary aggregates and nominal output that the Federal Reserve Board used in conducting monetary policy.[20]

Commercial banks, once the dominant type of financial intermediary, did not appear to share in the proliferation of financial-sector activity during the 1980s. The national expansion was accompanied by regional economic downturns (related to troubled industries, including oil and farming) severe enough to take down local banks (FDIC [1997]). By the early 1990s the condition of the industry was marked by crisis, failures, and consolidation; this was an industry under siege by

Figure 3



[18] Early articles assessing this phenomenon include Pavel (1986), Cummings (1987), and Carlstrom and Samolyk (1993).

[19] In 1986, the annual symposium sponsored by the Federal Reserve Bank of Kansas City was entitled "Debt, Financial Stability, and Public Policy." Policy research at this time also focused on the growth of borrowing by both nonfinancial businesses and households. For example see Pearce (1985), Faust (1990), Altig, Byrne, and Samolyk (1992), and Carlson (1993).

[20] For discussions, see Carlson and Samolyk (1992); Duca (1992); Orphanides, Reid, and Small (1994); and Friedman (1993).

competitors. Banking-sector problems continued as real-estate markets collapsed on both coasts, taking their toll on exposed institutions. And even as the industry returned to a healthier state, the consolidation trend did not appear to be abating.[21]

In addition, the importance of commercial banks measured in terms of credit flows seemed to be declining. Between 1974 and 1994, the share of domestic nonfinancial-sector debt that was advanced by U.S. commercial banks declined from 30 percent to just over 20 percent (see figure 5). Savings institutions—most like banks in terms of their funding (deposits), regulations, and decentralized industry structure—faced similar issues and appeared to be faring even worse.

[21] By year-end 1994, the number of commercial banks had declined from a 1984 post-war high of over 15,100 to roughly 10,500, and average bank size had risen from roughly $250 million to $360 million in inflation-adjusted 1996 dollars. (The number of savings institutions–savings banks and savings & loan associations–was also declining, from more than 3,600 in 1985 to just over 2,100 in 1994.) In addition to merging charters, more institutions were becoming affiliates of bank holding companies. Thus, if the bank holding company is considered the relevant measure of an individual banking organization, the number of firms in the industry declined even more. By year-end 1992, 71.7 percent of domestic commercial banks were affiliates of bank holding companies. For discussions, see Savage (1993), Samolyk (1994a), Holland et al. (1996), and Rhoades (1996).

The Declining Role of Banks?

A host of studies assessing the evolving role of banking were published in the wake of the banking crisis of the 1980s and early 1990s. These papers were written in the context of what had become a decade-long consolidation trend, an even longer-term decline in bank market-share measures, and concerns about a credit or capital crunch.[22] Not surprisingly, opinions about the "declining" role of commercial banking differed.

One view was that changes in the financial sector—evidenced by the increasing competition from nonbank financial-service firms—reflected a decreasing need for banks. From this perspective, consolidation could be viewed a response to excess capacity in the banking industry.[23] Others argued that the evidence did not support either the popular claims that large banking firms were more efficient than smaller firms or the notion that the industry was consolidating to eliminate excess capacity. Rather it was suggested that pub-

[22] As noted in above, concerns about disruptions to the traditional linkages between standard monetary aggregates and output also led to much research focusing on the implication for monetary policy. Also see Higgens (1992).
[23] For examples, see Kaufman (1993) and Gorton and Rosen (1995).

Figure 4

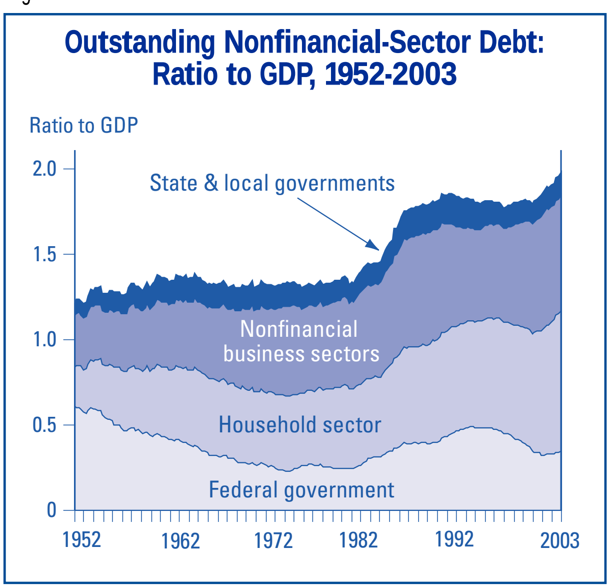
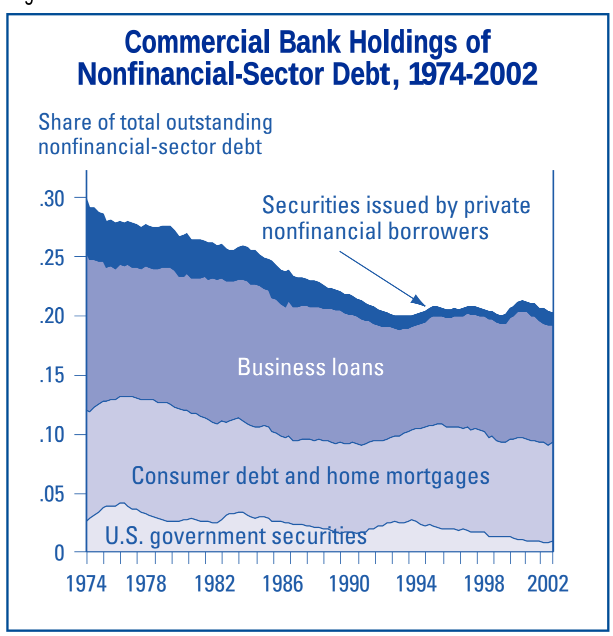


Figure 5



lic policies rather than performance gains were encouraging banks to merge.[24] More sanguine observers argued that banking was a battered but viable industry that needed industry consolidation and regulatory reform if it was to adapt to the evolving financial environment. In this environment, such observers argued, larger banks with broader banking powers would be able to compete by providing more services at lower costs and by spreading the costs of new banking technologies over more customers. In addition, as banks became larger and expanded geographically, the geographic scope of their activities would make them less vulnerable to the localized economic problems that had plagued banks during the 1980s and early 1990s.[25]

Others research argued that when bank balance-sheet data were looked at in isolation, they understated the share of financial services provided by banks in the broader financial sector. Boyd and Gertler (1994b) conducted perhaps the most extensive examination in this regard, documenting a host of alternatives to standard measures of balance-sheet market share. These alternatives quantified activity in the banking sector relative to activity in the broader financial sector or in the entire economy. The term "activity" is purposely general because Boyd and Gertler quantified banking-sector activity (and the activity of other financial-service providers) in numerous ways; they used measures that adjusted credit flows to reflect off-balance-sheet activities as well as measures of profitability, employment, and compensation.

Boyd and Gertler argued that a careful reading of the evidence did not support the view that banking was in decline. Although on-balance-sheet assets held by commercial banks had declined as a share of total assets held by intermediaries, they noted that this measure ignored the substantial growth in banks' off-balance-sheet activities, in offshore lending by foreign banks, and in the size of the financial-intermediation sector. They found that when measures of bank assets were adjusted for these considerations, the measures showed no clear evidence of long-term decline. Neither did an alternative "value-added" measure, constructed with data from the national income accounts. As Boyd and Gertler concluded, "At most, banking may have suffered a slight loss of market share lately. But this loss is a temporary response to a series of adverse shocks rather than the start of a permanent decline." Thus, by defining banking more broadly to include financial services that do not appear on bank balance sheets, the data did not indicate an industry in decline.

Finally, others argued that banks were still important to certain borrowers—particularly households and businesses that continued to rely on banks for credit.[26] Samolyk (1994b) analyzed bank market share from this perspective, distinguishing between bank lending and other asset holdings (such as securities holdings) and arguing that lending involves more intermediation services than holding securities does. Using FFA data to look at the markets where households and businesses borrow, that study found shifts in how banks were funding private borrowers, but the overall decline in market share was less than might have been expected. As business lenders, banks were facing increased competition from finance companies and direct credit markets;[27] the broadening of the commercial-paper market

[24] For examples, see Boyd and Graham (1991) and Boyd and Gertler (1994a). These studies suggest that the formation of very large institutions reflected regulatory incentives rather than attempts to become more efficient.

[25] For example, see Wheelock (1993). Generally, more sanguine analysts argued that institutions had to be larger to meet the competition for traditional bank services, to develop new products, and to diversify geographically. Samolyk (1994a) presented evidence that regional disparities in economic conditions did indeed explain much of the poor performance of banks (including large banks) during the 1980s and early 1990s.

[26] Small businesses and households have traditionally relied on financial intermediaries (particularly banks) for credit because of these borrowers' small financial size and the information-intensive nature of the task of assessing their creditworthiness.

[27] Finance companies, which faced less regulation of the geographic scale and scope of their activities, had gained significant ground during the 1980s and early 1990s. Some finance companies are captive funding vehicles for large conglomerates (e.g., GMAC Finance), whereas others are independent firms that extend credit to a particular sector. Some are subsidiaries of bank holding companies and, as such, allow the holding companies to broaden the scale or scope of their activities and avoid banking regulations. Within their respective specialized lending areas, finance companies diversify across many borrowers and develop expertise in transforming the risks associated with their particular types of loans. By so doing, they reduce overall portfolio risks and

provided an alternative to banks as a funding source. However, as of the early 1990s, the securitization of business loans had not really taken hold yet, and the share of business mortgages funded by banks was actually increasing. Meanwhile, the share of home mortgages and consumer credit that banks were funding was similar to the share they had funded in the early 1960s. Moreover, although asset securitization was becoming a more dominant way to fund household-sector borrowing, during the 1980s asset-backed lending grew more at the expense of savings institutions and finance companies than of commercial banks.

During the 1990s, survey data obtained from households and businesses also became important sources of information about the markets in which banks competed as lenders. These data were particularly useful because they yielded disaggregated pictures of the financial services used by households and by businesses. For example, data from the triennial Survey of Consumer Finances (SCF) were used to study the nature of rising household-sector debt ratios during the 1980s and early 1990s.[28] Kennickell, Starr-McCluer, and Sunden (1997) found little evidence of a serious rise in debt payment problems even though more families had debt, and more of it.[29] On the other side of the household balance sheet, the share of families who owned equities, and the amount of their holdings, were also rising. The FFA data, too, indicated rising debt burdens and equity holdings in the household sector, but the SCF data were important because they indicated that aggregate increases were associated with the use of these financial instruments by a broader range of households (as opposed to increased usage by previously active households).[30]

Another interesting vein of research during the 1990s examined whether the services provided by banks—such as lending—are different from those provided by other financial-service firms in ways that do not appear on a balance sheet. Using data on individual loans, Carey, Post, and Sharpe (1996) compared corporate lending by banks with corporate lending by finance companies.[31] Although their evidence suggested that both of these intermediaries were special in solving informational problems, the two types of institutions did not make the same types of loans. Although banks and finance companies competed across the spectrum of borrower risk, finance companies tended to serve observably riskier borrowers, especially highly leveraged ones.

Passmore and Laderman (1998) investigated whether there were differences between savings associations and commercial banks that would result in reduced lending to traditional mortgage borrowers if the savings-association charter were eliminated. Their empirical tests did not indicate significant differences between savings associations and commercial banks, suggesting that elimination of the savings-association charter would not impair home mortgage credit availability.

A final vein of research that gained prominence in the 1990s examined whether the consolidation of the banking industry into large organizations adversely affected the availability of credit to

the risk-adjusted costs of funding their activities. In addition, the evolution of the commercial-paper market has been viewed as contributing to the success of those finance companies that shifted to commercial paper as a dominant funding source rather than borrowing from banks (D'Arista and Schlesinger [1994]).

28 The SCF has been gathering data on balance sheets and the use of financial institutions by U.S. households since 1983. For example, see Avery and Kennickell (1993) and Kennickell and Starr-McCluer (1996). The most direct precursors of the SCF were the 1962 Survey of Financial Characteristics of Consumers and the 1963 Survey of Changes in Family Finances. For a discussion of survey evidence regarding small business financing trends from the early National Survey of Small Business Finances see Cole and Wolken (1993).

29 This paper uses data from the 1995, 1992, and 1989 SCFs to examine changes in the balance sheets and income of U.S. families and in the kinds of institutions where households obtained their financial services. Also see Avery and Keninckell (1993) for trends in the SCF data between 1983 and 1986.

30 The FFA and the SCF do not always paint the same picture of household-sector balance sheets. Avery and Kennickell (1991) and Antoniewicz (1996) show that although some asset and liability categories in the SCF and the FFA are quite close, measures of liabilities tend to match up better than asset categories.

31 Although commercial banks have long been viewed as competing with savings institutions and credit unions for deposit funding, finance companies represent competition on the asset side of the balance sheet, for they have a long history of lending to businesses and households (although they do not fund their portfolios by issuing deposits).

small businesses.[32] This literature did not directly yield evidence about bank market share vis-à-vis the nonbank competition, but it raised the important question (somewhat overlooked in many bank market-share analyses) of whether banks might be willingly reducing the services they supplied to certain customers, such as small-business borrowers. If they were (or are), one would hope that other financial-service suppliers would step forward to meet the credit needs of these customers.

This discussion of some of the research of the 1990s indicates that by looking at particular markets where banks are thought to play a special role for lenders as well as by looking beyond the extent to which banks are funding loans on their balance sheets, researchers were able to find evidence that the decline in the share of total nonfinancial-sector debt funded by banks could be misrepresenting the importance of banks in U.S. credit markets. The next two sections examine more recent credit-market trends from both of these perspectives to better illuminate the evolving role of banks in the twenty-first century.

Recent Credit-Market Trends: Who Is Funding Whom?

There is no doubt that the share of nonfinancial-sector debt directly funded by commercial banks declined during the 1980s. More than a decade after that decline, it has become clear that the debt buildup of the 1980s was actually a secular increase in the volume of nonfinancial borrowing associated with economic activity in the U.S. economy, which can be thought of as a permanent increase in the economy's financial capacity (figure 6). Moreover, this increase in financial capacity was not associated with intermediation funded by banks; hence, banks' share of the pie had declined. However, as the debt capacity of the economy's nonfinancial sector stabilized in the 1990s, so did the market share of commercial banks. During the past decade, the banking sector has rebounded to record profits, and although consolidation has continued, it is occurring in the context of a healthy industry.[33] Here we look at how the players and the instruments used to fund nonfinancial borrowers in U.S. credit markets have evolved during the past decade.

Changed Players and Funding Instruments

The types of credit market instruments (loans and securities) issued by nonfinancial borrowers to obtain funds in formal credit markets have not changed as much as the types of instruments used to fund these credit flows (table 2). Households still obtain credit primarily in the form of home

[32] After bank data on small loans to businesses and farms were first reported, in 1993, numerous studies looked at the importance of large banks compared with small banks as small-business lenders, and at the implications of industry consolation for the provision of small-business loans by banks. The findings of studies using data for the mid-1990s suggested that net consolidation activity among larger institutions tended to result in declines in small-business lending as a share of bank assets, whereas mergers among smaller or more focused banks increased the banks' small-business loan shares. Samolyk (1997) and Berger and Udell (1998) discussed some of the small-business loan studies done in the mid-1990s.

[33] Consolidation has been related to the relaxation of geographic banking restrictions that limited the extent to which banks could expand their geographic reach (Samolyk and Morgan [forthcoming]).

Figure 6

mortgages and consumer loans (although the former now include home equity lines of credit, which were an innovation of the 1980s). But now asset-backed securities—issued by both private asset-backed-securities (ABS) issuers and federally related mortgage pools—have become an important funding mode. And although nonfinancial businesses still obtain credit primarily in the form of (a) loans collateralized by business real estate (business mortgages), (b) other (nonmortgage) loans from intermediaries, and (c) corporate securities, business loans are also being securitized, and larger amounts of corporate securities are funded by the issuance of mutual-fund shares. The appendix discusses changes in the composition of investors' portfolios and the way in which these changes relate to changes in the funding of credit-market debt.

All of these changes are reflected in the growing extent to which the commoditization of credit markets has allowed borrowing by businesses and households to be funded in direct credit markets by securities issues.[34] Roughly one-third of total outstanding credit-market debt is now issued by the financial sector to fund other credit-market debt (figure 7). And whereas during the 1980s the growth of securitization largely reflected mortgage funding through federally related mortgage pools, during the past decade, securitization by private ABS issuers has expanded rapidly. FFA data estimate that now almost half of outstanding

[34] Debt issued by government-sponsored enterprises (for example, by Federal Home Loan Banks and the Farm Credit System and to fund the on-balance-sheet lending of Fannie Mae and Freddie Mac) has also increased, but (as we discuss below) much of it funds financial sectors, mainly commercial banks and other depository institutions.

Table 2

Credit Markets circa 2000

Sector	Primary assets held	Financial source of funding
	INDIRECT FINANCE	
Commercial banks	U.S. Treasury securities; Other securities (includes asset-backed); Nonmortgage business loans (C&I, Ag); Business mortgages; Home mortgages Consumer credit	Interest-bearing checking accounts Passbook savings accounts MMF accounts; Nondeposit borrowing
Savings institutions	U.S. Treasury securities Other securities (includes asset-backed) Home mortgages Consumer credit	Interest-bearing checking accounts Passbook savings accounts MMF accounts; Nondeposit borrowing
Finance companies	Non-mortgage business loans Consumer loans	Bank loans Commercial paper and Corporate bonds
Insurance companies Pension funds	Corporate bonds State and local government securities	Contingent liabilities to claims holders Defined benefit pension claims
Federally related mortgage pools; ABS issuers	Home mortgages; Consumer credit Business mortgages; Nonmortgage business loans	U.S. agency securities (mortgage pools) Commercial paper and corporate bonds
Money market mutual funds; Mutual funds	U.S. Treasury securities Agency securities (includes asset-backed) Corporate bonds and commercial paper	Mutual fund shares
	DIRECT FINANCE	
Sector	**Financial assets**	**Financial liabilities**
Investors	Corporate bonds and paper U.S. government and agency securities State and local government securities	

corporate bonds have been issued by financial firms that fund other credit-market debt, with private ABS issuers accounting for a fourth of the corporate bond market (figure 8). The commercial-paper market has always been dominated by financial-sector issues;[35] during the past decade, however, private ABS issuers have become the dominant issuers of commercial paper. More than half of outstanding commercial paper (roughly two-thirds of financial issues) is now funding securitized pools of loans—including loans originated by banks (figure 9).

So who is funding whom? The funding of loans through private securities markets and the additional layers involved in modern credit flows have made it more difficult for researchers to track the flow of funds between primary lenders and primary borrowers. However, we use the FFA to examine the extent to which loans to nonfinancial businesses and households are being directly funded by commercial banks and other intermediaries.

[35] Finance companies have long used commercial paper as a source of financing, and banks began tapping this market for funds to offset disintermediation during periods when market rates rose above the deposit-rate ceilings.

Nonfinancial Business-Sector Credit

Borrowing by nonfinancial businesses can be divided into three "markets," each of which has historically accounted for roughly a third of outstanding nonfinancial-sector business debt: corporate bonds, shorter-term nonmortgage loans and commercial paper, and loans secured by business real estate (business mortgages). Commercial banks have tended to hold only small amounts of corporate bonds, so here we focus on banks' role in funding shorter-term nonmortgage business borrowing and business mortgages.

Shorter-term business borrowing (depicted in figure 10) is a very heterogeneous credit market. It includes all nonmortgage loans to nonfinancial businesses—from vehicle or equipment loans to business credit lines. It also includes the very liquid commercial-paper issues that fund only the largest corporations. Trends in the composition of shorter-term business borrowing are also most often cited as evidence of the declining impor-

Figure 7

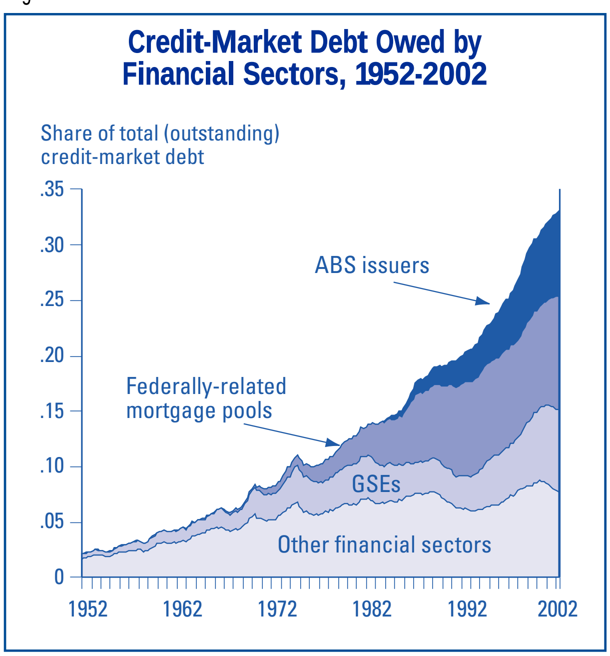
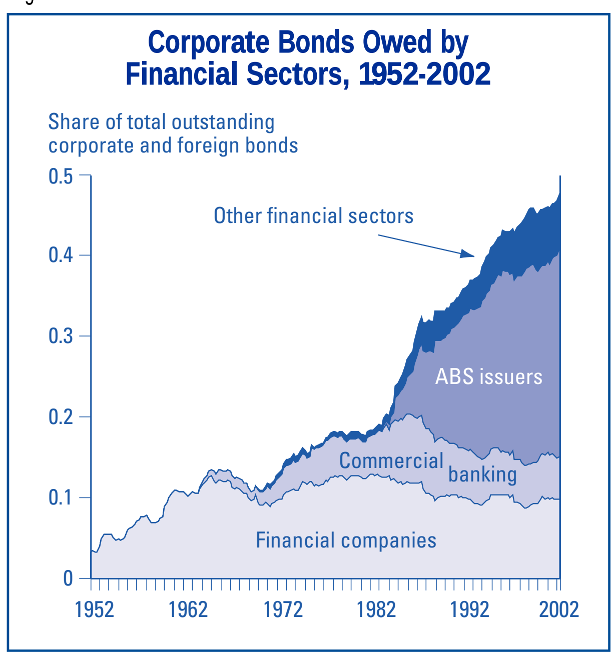


Figure 8



tance of commercial banking (for example, by Herring and Santomermo [2000]). The share of shorter-term nonfinancial-sector business credit funded directly by banks declined from more than 75 percent in the early 1970s to just over 50 percent in the early 1990s (it has stabilized during the past decade). Meanwhile the share funded by finance companies has steadily increased, now accounting for 20 percent of shorter-term nonfinancial business-sector credit. ABS issuers have made inroads in funding nonmortgage business loans, although they still account for only 6 percent of this market. Interestingly, commercial paper, one of the widely cited alternatives to bank borrowing, accounts only for roughly 7 percent of this short-term business credit market.

Trends in the business mortgage market—defined to include loans secured by business real estate, including commercial, multifamily residential, and agricultural properties—are depicted in figure 11. Commercial banks now directly fund more than a third of outstanding business mortgages, up from 20 percent two decades ago (and that was before the banking crisis). Private ABS issuers, which did not exist 20 years ago, are now the second-leading business-mortgage funding mode, accounting for 15 percent of the market.[36] Meanwhile, direct funding by life insurance companies and savings institutions has declined significantly.[37]

Figure 12 depicts commercial bank holdings of the three types of business borrowing (combined) as a share of total outstanding nonfinancial business-sector debt.[38] The figure also relates this ratio to the growth of nonfinancial business borrowing over time (measured relative to GDP). As the figure indicates, we estimate that commercial banks fund roughly a third of nonfinancial business-sector debt. And somewhat surprisingly—given discussions about the declining importance

[36] The genesis of markets where business loans can be securitized has been linked to the Resolution Trust Corporation's activity in disposing of assets in the wake of savings institution problems.

[37] Insurance companies now hold roughly 12 percent of business mortgages, compared with 22 percent 20 years ago and 29 percent 50 years ago. Savings institutions hold less than 8 percent, compared with 22 percent 20 years ago and a peak of 27 percent in the 1970s. The share of business mortgage loans funded directly by nonfinancial borrowers has also declined.

[38] Nonfinancial business-sector debt held by commercial banks is estimated to equal the sum of business mortgage loans, bank loans not elsewhere classified, liabilities on banker's acceptances, and the estimated holdings by commercial banks of nonfinancial-sector issues of commercial paper and corporate bonds.

Figure 9

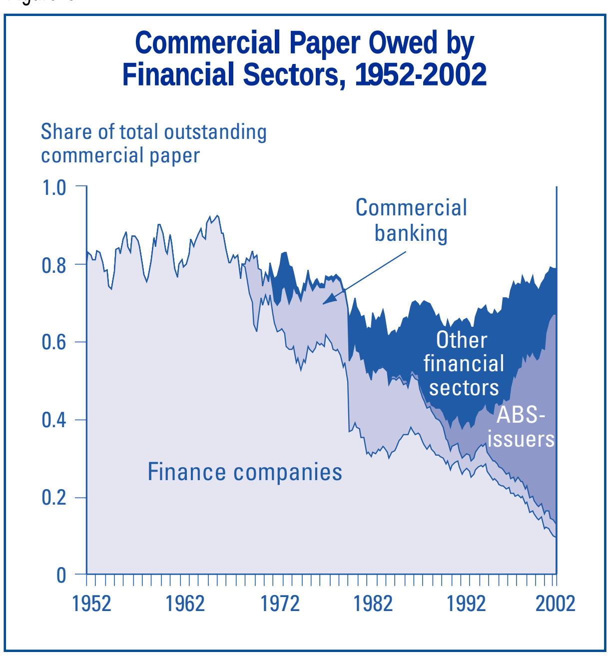
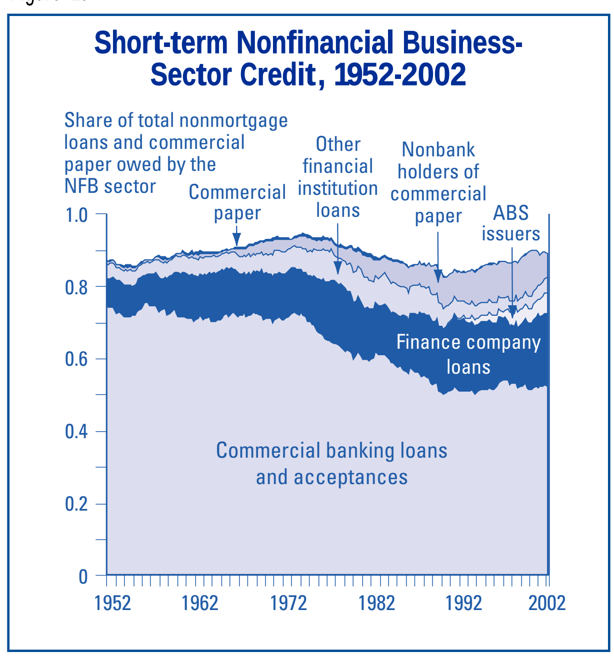


Figure 10



of banking for U.S. businesses—this market share has not exhibited a downward trend during the past several decades. But what we do find is a notable shift in the type of business loans being extended by banks, from shorter-term nonmortgage business loans to loan collateralized by business real estate. Thus if one looks only at nonmortgage bank lending, one sees a decline in bank market share, seemingly related to the growth of nonfinancial business-sector debt. However, looking only at this decline is to ignore the other markets where banks fund nonfinancial-business borrowers.

These business-sector trends are broadly consistent with more recent evidence offered in the Federal Reserve Board's Report to the Congress on the Availability of Credit to Small Businesses (2002).[39] This report analyzes small-business financing trends using a wide range of data sources and concludes that the patterns of credit use evident in small-business survey data do not indicate a decline in the importance of commercial banks (see also Bitler, Robb, and Wolken [2001]). Commercial banks remain the leading source of credit to small businesses that borrow and the most common source of credit products of all types.[40] The report also discusses trends in asset securitization but notes that the securitization of small-business loans has been modest, and it appears unlikely that the securitization of small-business loans will increase significantly in the near term. Thus far, the data do not indicate that asset securitization has yet to become a dominant funding mode for businesses, undoubtedly because business lending is less conducive to standardization than other types of lending.

Household-Sector Credit

Home-mortgage debt has long been the primary type of borrowing for households, and its share of total household-sector debt has risen since the elimination in 1986 of tax deductions for interest paid on nonmortgage credit.[41] By the early 1990s the secondary mortgage market had already made

39 This report, produced every five years pursuant to section 2227 of the Economic Growth and Regulatory Paperwork Reduction Act of 1996, can be found on the Internet at www.federalreserve.gov/boarddocs/rptcongress/sbfreport2002.pdf.
40 The Survey of Small Business Finances (SSBF) asks respondents to discuss specific types of loans, including vehicle loans, equipment loans, lines of credit, leases, and mortgages.
41 See Canner, Durkin, and Luckett (1998).

Figure 11

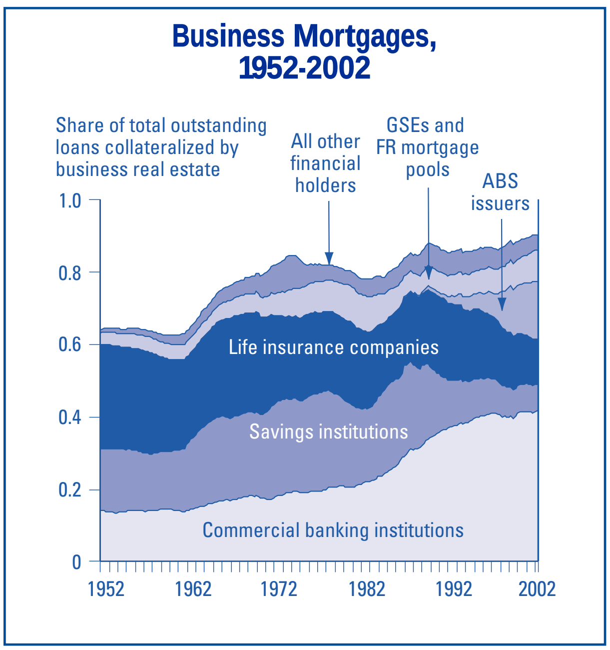
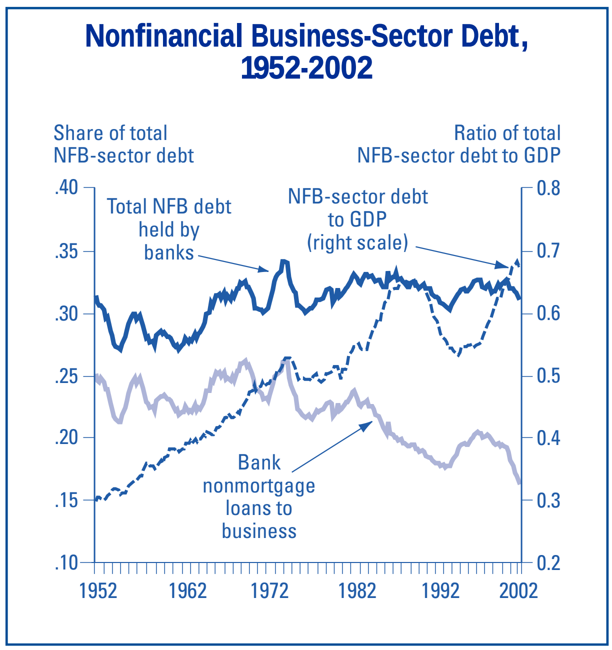


Figure 12



enormous inroads into the funding of home mortgages, and the past decade has seen further increases in the market share held by federally related mortgage pools, government-sponsored enterprises (GSEs), and private issuers of asset-backed securities (see figure 13). GSEs and federally related mortgage pools now fund close to half of outstanding home-mortgage debt, up from 35 percent a decade ago and from a mere 10 percent in 1983. Commercial banks' holdings of home-mortgage debt have been remarkably stable, roughly equal (at 18 percent now) to the level they were 20 years ago. Clearly, this is the market that manifests the rise and fall of savings institutions, whose share of the home-mortgage market has declined from more than 50 percent 20 years ago to only 13 percent today. Some of this decline in market share (and the stability of commercial banking's share) reflects the absorption of savings institutions into the commercial-banking sector through mergers and charter conversions. Life insurance companies, which had significant home-mortgage holdings in the 1950s and 1960s, directly fund almost no home mortgages today.[42]

[42] Home-mortgage lending has always been mainly funded by financial intermediaries, and the share of such lending held by financial firms now stands at a 50-year high of 96 percent.

Of course, commercial banks, savings institutions, and insurance companies can—and do—fund the home-mortgage market indirectly when they invest in the securities issued in the context of secondary market activity. However, we net these indirect holdings out of our market-share measures to avoid overstating the flow of credit to home-mortgage borrowers.

In terms of consumer credit, commercial banking's share of funding has not been so stable (figure 14). From the 1950s through the 1970s, an "institutionalization" of the consumer-credit market took place, referring to the increasing extent to which consumer credit was funded through intermediaries (depository institutions and finance companies) rather than directly by nonfinancial corporations (e.g., manufacturing and retail firms). In its infancy, asset securitization by private ABS issuers represented a shift—rather than an increase—in the intermediation of consumer credit. In the late 1980s and early 1990s, the shift came at the expense of savings institutions and finance companies rather than commercial banks or credit unions. Indeed, as recently as 1994, close to half of outstanding consumer credit was directly funded by commercial banks, and

Figure 13

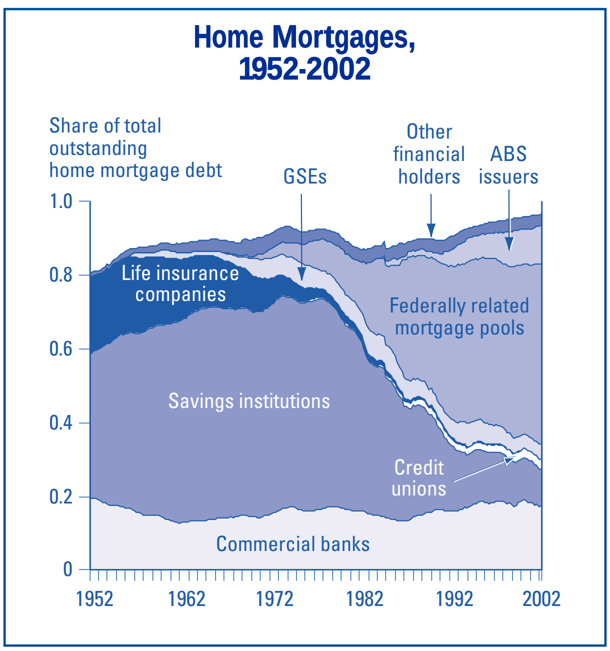
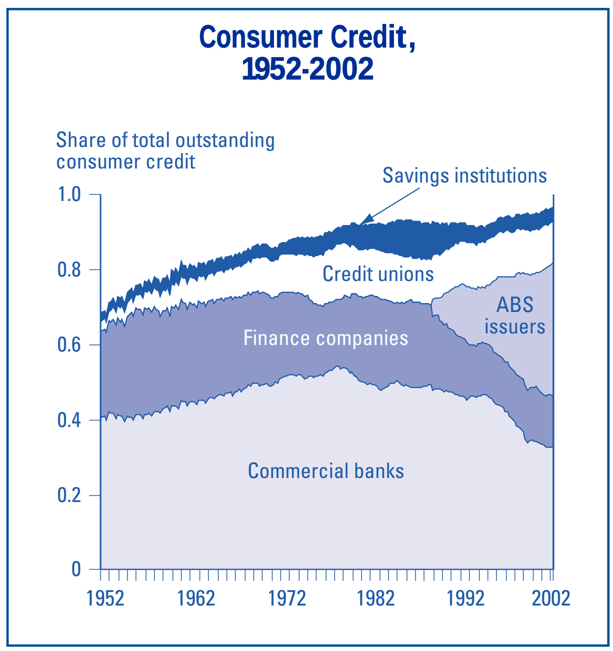


Figure 14



analysts speculated about the long-run role of asset securitization as a funding mode for consumer credit. A decade later, the speculations are answered. The funding of consumer credit through financial intermediation stands at an all-time high of 97 percent, and securitized pools now finance a third of outstanding consumer credit. Commercial bank holdings of consumer credit have declined to roughly a third of the market. Finance companies, savings institutions, and credit unions account for the remainder. In the evolving consumer-credit market, credit unions appear to have fared the best among traditional intermediaries in terms of maintaining market share.

What then do the FFA data indicate about trends in the overall importance of commercial banks in household-sector credit markets? Figure 15 relates commercial banking's market share of home-mortgage and consumer debt to the overall growth of these types of credit markets (the latter measured relative to GDP). Five decades of FFA data indicate that commercial banking's share of home-mortgage and consumer credit has tended to trend downward when borrowing capacity in these markets has been expanding (again, measured relative to GDP). Thus (as with broader nonfinancial-sector debt) although commercial bank funding of home mortgages and consumer credit has grown, the overall flow of credit to households through these markets has expanded by much more.

And Banks' Competition?

Our analysis of the markets where households and businesses borrow does not seem to validate the dire predictions suggested by some analyses. Although we certainly find that commercial banks' on-balance-sheet market share is lower than it was 20 years ago, the decline we are measuring in the role of banks seems to be smaller than the declines advanced by others. Here we reconcile our findings with the findings of those who suggest a more serious decline in the importance of banks; we then look at the competition faced by commercial banks.

We find less in the way of a decline than other researchers for two reasons. First, when we examine the role of commercial banks in channeling credit to nonfinancial-sector borrowers, we net out credit-market debt issued to fund more debt. Netting out financial-sector debt (figure 16) yields generally stable market shares since the

Figure 15

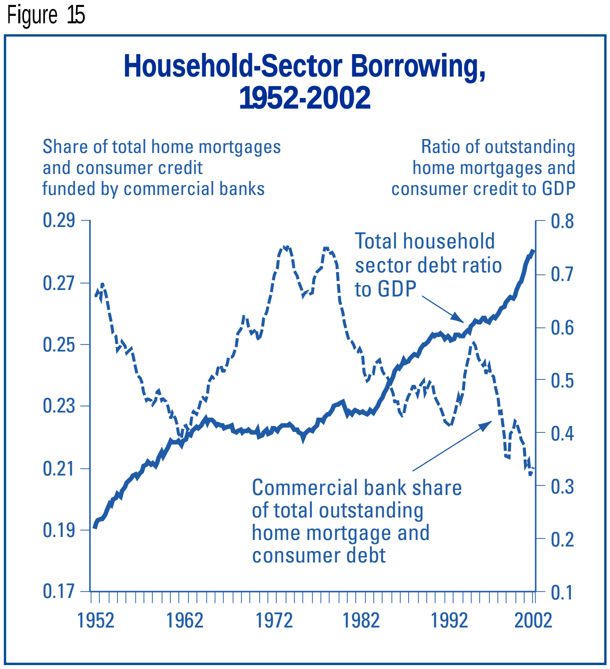
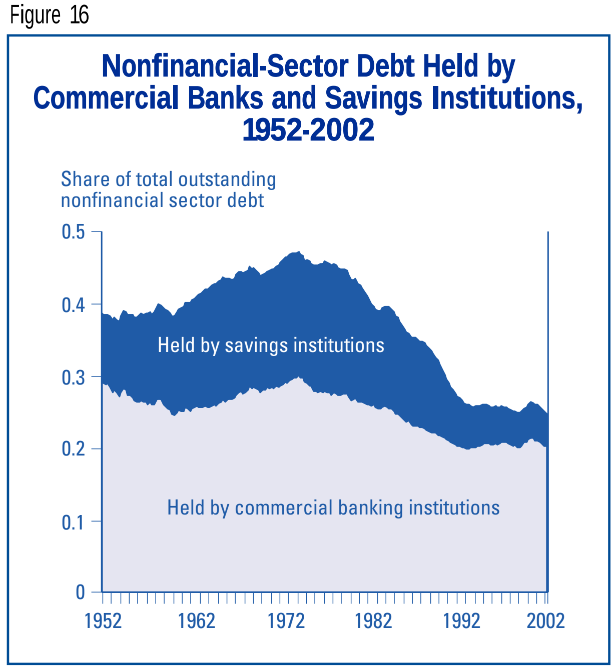


Figure 16



early 1990s, while market-share measures that are based on total debt show further declines through 2002 (figure 17).[43] This indicates that the growing volume of credit-market debt being issued by financial firms does not entirely reflect funds being issued to displace lending by other financial-sector players. Indeed as we shall see, some financial-sector issues of credit-market debt (notably those of Federal Home Loan Banks) are channeled as sources of funding to other financial firms—including banks.

A second reason we find less of a decline in banks' market share than other researchers do is that we focus on commercial banking rather than on banking in the sense of all depository institutions. Savings institutions historically have been quite different from commercial banks and certainly have had distinctly different experiences in the nation's evolving financial environment.[44]

What, then, can we say about the overall market-share trends for the competition? Figure 18 illustrates the share of nonfinancial-sector debt directly funded by sectors commonly viewed as the strongest competition for banks in the new financial world.[45] Finance companies, GSEs, and asset-backed-securities issuers largely fund their intermediation by issuing securities in direct credit markets. Mutual funds issue mutual-fund shares that may be held directly by individuals or indirectly as assets by defined-contribution pension plans. The picture displays some intriguing results.

Not so surprisingly, we find that significant competition has indeed come from asset securitization, both federally related and private. The evolution of home-mortgage financing in the direction of securitization suggests that large segments of the mortgage market are better suited to funding by the issue of long-term debt. Certainly this funding mode reduces the interest-rate risks

[43] Netting out holdings of financial-sector debt for commercial banking and other financial sectors reported in the FFA requires detailed analysis of each sector's financial asset holdings. When detail is not reported in the FFA, specifically for corporate bonds and commercial-paper holdings, we estimate holdings of nonfinancial-sector issues using patterns evident for these markets in the FFA.
[44] This is particularly true now that asset securitization has become the dominant funding mode for home mortgages–traditionally the primary asset held by savings institutions.
[45] For some of these sectors, the flow of funds allows one to directly identify holdings of nonfinancial sector debt. For others, such as the sectors that hold corporate bonds and commercial paper, we used the patterns evident in these markets to impute holdings owed by nonfinancial borrowers.

Figure 17

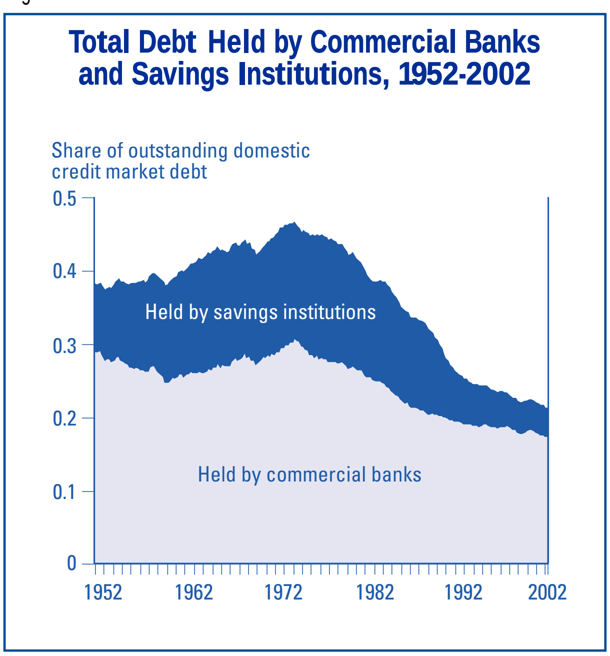
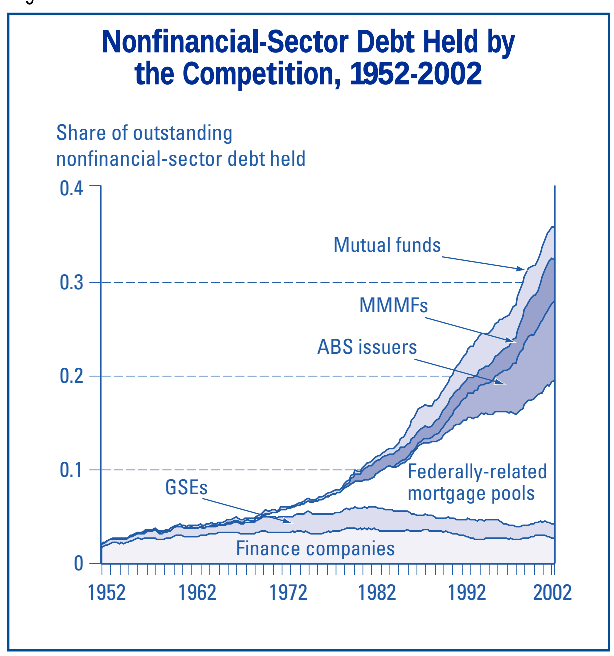


Figure 18



associated with funding long-term mortgages by issuing deposits. As we argue in the appendix, mortgage securitization is better suited to attracting long-term investment funds associated with the accumulation of pension wealth. At the same time, the evolution of home-mortgage funding has basically reduced the role of S&Ls (and insurance companies) in funding home mortgages.

A somewhat more curious source of competition for commercial banking appears to be securitization by private ABS issuers. This mode of funding has affected the nonmortgage markets where households and businesses borrow—most particularly, consumer-credit markets. However, as we discuss in the next section, there is some question as to whether ABS issuers are competitors of banks or merely an alternative mode of funding for banks (particularly large ones).

A third sector that is growing its market share as a funder of the nonfinancial sector is the mutual-fund industry. Of course, since mutual funds hold securities rather than loans, their growth represents less direct competition than the growth of federally related mortgage pools and ABS issuers for the types of lending that make banks special—loans to households and businesses. Indeed, as we show in the appendix, the growth of mutual funds reflects a shift on the part of investors from holding securities directly toward holding them through mutual funds to achieve diversification of risks.

In recent decades two other sectors—ones that are often brought up in discussions of the growing competition faced by banks—have not measurably increased the share of nonfinancial-sector debt they fund. These sectors are finance companies and GSEs. Finance companies may also be securitizing some of the more standardized types of loans they make to households and businesses. GSEs' share of *total* credit-market debt has risen (see figure 7), but as noted earlier, much of this debt funds intermediaries—including commercial banks and savings institutions—rather than nonfinancial borrowers.

Alternative Measures of Bank Market Share

As discussed above, a decade ago, differences in what constitutes banking services led to different assessments of the prospect for banks. Researchers who tended to define banking services in terms of what one sees on bank balance sheets (deposit taking, lending, and investments in securities) tended to be more pessimistic about the future of banking.[46] Alternatively, researchers who tended to look beyond traditional banking activities—at an extreme, broadly defining banking as including the "measuring, managing, and accepting of risk"—argued that banks were not becoming less important.[47] From the latter perspective, new services provided by banks—whether the selling of mutual-fund shares to investors or the origination, sale, and servicing of loans funded by securitizations—are merely banking in different forms.

In this section we broaden our perspective and ask how else we might measure the importance of banks in the U.S. financial sector. The growth in our economy's debt capacity that has been funded through direct credit markets rather than through traditional intermediation does not mean that intermediaries—particularly banks—do not provide important services that facilitate funding in securities markets. Here, therefore, we revisit the notion that looking beyond what is measured on bank balance sheets may yield a different view of the evolving role of commercial banks in facilitating credit flows.

[46] An example of a relatively recent paper arguing that banks have become less special is Herring and Santomero (2000). These authors document the decline in banks' funding of credit-card receivables, the rise in banks' share of mortgages that are securitized, and the erosion of banks' share of the short-term commercial lending market. They also argue that banks are losing ground on the liability side of their balance sheets, as demographic trends and technological advances on the payments side make mutual funds an increasingly attractive alternative to bank deposits.
[47] This phrase was used by Greenspan (1994) in addressing the conference where Boyd and Gertler presented their work on alternative measures of bank market share.

As credit-related services have become unbundled, layers of transactions have been added to the intermediation process, and each layer (albeit just a piece of the overall services associated with a given flow of funds) adds value. Banks now provide services in originating, servicing, or enhancing the creditworthiness of credit flows that end up being funded elsewhere. But even though the asset is not booked on a bank's balance sheet, the provision of any and all credit-related services should be reflected in the income of the providers. Accordingly, here we examine income-related measures of bank activity, which should reflect the flow of services provided over time (since income is generated by the production of goods and services in our economy). We examine data on income and profitability. We also look at estimates of output, employment, and annual compensation in the banking sector compared with other sectors in the economy.

Income and Profitability

The unbundling of credit-related services (as well as the concomitant provision of off-balance-sheet financial services that generate income) suggests that income-based measures of market share may in fact be superior to balance-sheet-based constructs. Ideally one would like to measure the income flows associated with the provision of particular types of services (origination, servicing, packaging and funding, credit enhancing) in particular types of credit markets (the home-mortgage, consumer-credit, or business-credit markets). Unfortunately, comprehensive income-based equivalents of the FFA do not exist. Hence we must piece together evidence about banks' provision of credit-related services both on and off their balance sheets and must infer the meaning of such evidence for the evolving importance of commercial banking in the U.S. financial sector.

In both household- and business-sector credit markets, the off-balance-sheet roles of commercial banks are increasingly important. In home-mortgage and consumer-credit markets, bank off-balance-sheet activities tend to be related to the loan-securitization process. More than half of home mortgages and an increasing share of consumer debt are funded through asset-backed securities, and commercial banks (particularly large ones) play growing off-balance-sheet roles in these markets.

The Survey of Consumer Finances (SCF)—which tends to indicate where households obtain credit, not necessarily where the credit is funded—does not indicate a decline in the share of debt that households reported *obtaining* from commercial banks since 1989 (table 3).[48] This contrasts with the market-share trends in *funding* we found using FFA data.

[48] The SCF data do indicate a dramatic decline in the volume of household credit obtained from savings institutions. Ascorbi and Kennickell (2003) report trends evident from the 2001 SCF.

Table 3

The Survey of Consumer Finances Public Data

Percentage of debt of all families, distributed by type of lending institution
1989, 1992, 1995, 1998, and 2001 surveys

Type of institution	1989	1992	1995	1998	2001
Commercial bank	28.1	33.1	35.0	32.8	34.1
Savings and loan or savings bank	26.0	16.9	10.8	9.7	6.2
Credit union	3.8	4.0	4.5	4.2	5.5
Finance or loan company	3.7	3.2	3.2	4.1	4.3
Brokerage	2.5	3.2	1.9	3.8	3.1
Mortgage or real estate lender	20.8	27.2	32.7	35.5	37.9
Individual lender	7.8	4.3	5.1	3.4	2.0
Other nonfinancial	1.6	1.6	0.8	1.4	1.4
Government	2.0	1.9	1.2	0.6	1.1
Credit card and store card	2.8	3.3	3.9	3.9	3.7
Pension account	0.1	0.1	0.2	0.4	0.3
Other	0.9	1.1	0.7	0.3	0.4
TOTAL*	100.0	100.0	100.0	100.0	100.0

**Note:* Totals may not sum to 100 due to rounding.
Source: Federal Reserve Board.

In terms of consumer credit, the participation of commercial banks (particularly large ones) in the securitization process tends to involve more than loan origination. For credit-card securitizations, large commercial banks originate, service, and monitor the accounts. Thus, they have the relationship with the borrower. Through a legally separate special-purpose-entity they channel their receivables into a package that can be funded by investors—including mutual and pension funds—that are willing to hold asset-backed securities. The originating institution manages the assets being securitized to maintain the credit quality of the pool and often holds a tranche to further enhance the pool's quality. Finally, the bank that is sponsoring the pool generally receives any residual income earned on these assets in the pool, beyond what is promised to the investors buying the ABS-issuer's securities. What credit-related services is the bank not performing in this process? One could, therefore, argue that credit-card securitizations should be included dollar for dollar when the share of commercial banks in consumer-credit markets is measured, since this process is effectively a means of funding the loans by the issuance of secured debt (rather than deposits).

As for business credit markets, although securitization plays less of a role than it does in household-sector credit markets, commercial banks have long played a role in providing the liquidity and credit facilities that support the placement of debt in direct credit markets—including debt issued by financial firms. This activity was highlighted by researchers a decade ago.[49] Thus income for services not reflected on banks' balance sheets extends beyond income connected with loans sold into securitized loan pools.

Noninterest income as a share of earnings has received considerable attention from analysts during the past two decades, for the share of net operating revenue from noninterest income has more than doubled since 1980 (figure 19). Until recently, however, it has been difficult to identify the extent to which the growth in noninterest income has been related to such off-balance-sheet activities as asset securitization. Before 2001, bank Call Reports asked for detail only on three categories of income: service charges on deposit accounts, fiduciary (trust) income, and revenues from trading operations. All other noninterest income was reported in two residual categories: Other Fee Income and All Other Noninterest Income. Thus, although the relative growth of bank noninterest income was driven by these two residual categories, it was impossible to discern the nature of the activities associated with this growth in income. Since the beginning of 2001, however, commercial banks (and savings institutions) have reported greater detail about noninterest income.[50]

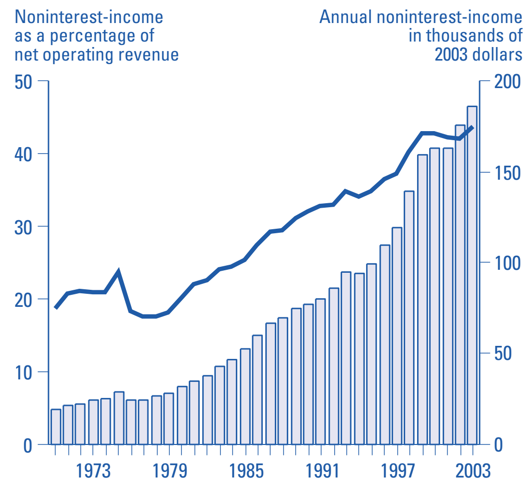
As summarized in table 4, these relatively new data indicate some interesting facts about the noninterest revenue and the nature of bank off-

[49] Boyd and Gertler (1994b); D'Arista and Schlesinger (1994); Avery and Berger (1991a), and (1991b).

[50] As reported by Waldrop (2002), "The new report format introduced in the first quarter of 2001 still includes fiduciary income, deposit service charges, and trading revenues, but it now also breaks out income from investment banking services, revenues from venture capital investments, servicing fees, income from asset securitization activities, insurance commissions and fees, and proceeds from sales of loans, other real estate, and other assets."

Figure 19

Noninterest Income as a Percentage of Bank Net Operating Revenue



Source: FDIC
Note: Net operating revenue is the sum of net interest income and noninterest income.

balance-sheet activities.[51] About 34 percent of noninterest income comes from what can be thought of as traditional banking activities. The traditional sources include deposit account fees, trust activities, and asset sales not associated with securitization. The large number of institutions reporting and the relatively low concentrations of income earned by the five largest income earners in these categories suggest that these sources of income are used fairly broadly.

Roughly 15 percent of noninterest income in 2001 came from sources formerly associated with nonbank firms. The activities not generally thought of as traditional banking include trading, investment banking (fees and commissions from investment banking, advisory, brokerage, and underwriting services), and insurance services. Of these, income from trading activities is concentrated among a relatively small number of institutions, but a wide range of banks earn at least some income by providing investment banking and insurance services.

In terms of noninterest income associated with the commoditization of credit, about 18 percent of noninterest income reported by banks in 2001 reflected fees for servicing assets funded elsewhere and securitization income (net gains on sales of securitized assets plus nonservicing fees). As Waldrop (2002) pointed out, "The data show that securitization income (net gains on sales of securitized assets plus non-servicing fees), at $16.4 bil-

[51] Table 4, based on data reported by Waldrop (2002), shows the amount of noninterest income in each component category, as well as the number of banks reporting non-zero amounts in each category. It also shows the share of income in each category represented by the combined totals of the five largest amounts reported, to indicate how highly concentrated each underlying activity was within the banking industry during 2001.

Table 4

Noninterest Income of Insured Commercial Banks, 2001
(Amounts in $ Thousands)

Noninterest Income Category	Full Year Amount	Percent of Total	No. of Banks Reporting	Combined Share of 5 Largest Reported Amounts
Traditional sources of bank noninterest income				
Net gains/losses on sales of other assets[1]	2,249,208	1.40	2,321	84.60%
Net gains/losses on loan sales	4,642,565	3.00	1,739	47.50%
Income from fiduciary (trust) activities	20,751,226	13.20	1,668	39.40%
Service charge on deposit accounts	26,472,609	16.80	7,909	33.90%
Trading, investment banking, and insurance				
Trading revenues	12,524,834	8.00	175	82.60%
Investment banking and other fees	9,096,981	5.80	2,178	55.80%
Venture capital revenue	–740,222	–0.50	61	N/M
Insurance commissions and fees	2,874,938	1.80	4,063	38.40%
Servicing and securitizing loans				
Servicing fees	11,568,730	7.40	1,626	41.50%
Securitization income	16,349,975	10.40	100	64.00%
Not identified				
Other noninterest income	51,335,770	32.70	7,983	21.20%
Total noninterest income	157,171,912		8,050	

Source: Bank Call Reports (FDIC Research Information System).
[1] Excludes gains/losses on sales of OREO, which accounted for negligible amount of income in 2001.

lion for the year, represented the largest amount of any of the new categories. The next-highest category was servicing fees, at $11.6 billion."

Also included in the residual category of "All Other Noninterest income" is income from unconsolidated subsidiaries, data processing services, ATM usage fees charged to depositors from other institutions, and income from other services (notably the provision of liquidity and credit facilities). This residual category is still the largest component of total noninterest income. At $51.3 billion in 2001, it represented 33 percent of commercial banks' noninterest income.

Income is obviously closely related to profitability, and in this regard banking has been holding its own. The data on profits, like the data presented below on output, employment, and compensation, are from the Bureau of Economic Analysis (BEA), which constructs estimates of these measures for broad sectors of the U.S. economy, including financial sectors. One limitation of the BEA data series is that the classification of "credit agencies" was changed in 1987. Through 1987, commercial banking was specifically broken out as a component of credit agencies; other lenders (such as savings institutions and finance companies) were aggregated simply as "other credit agencies." With the elimination of many of the differences between commercial banks and savings institutions, industrial classifications for credit agencies were redefined as "depository institutions" and "other credit agencies." Thus, we cannot directly observe what is happening to commercial banking's share of economic activity, but we can draw some inferences based on what we observe for all depository institutions and on the relative shrinkage of the savings institution industry since 1987. A second limitation of these data is that they do not contain the same level of detail as the FFA. Hence we cannot look at trends for banking vis-à-vis particular types of other financial-service providers.

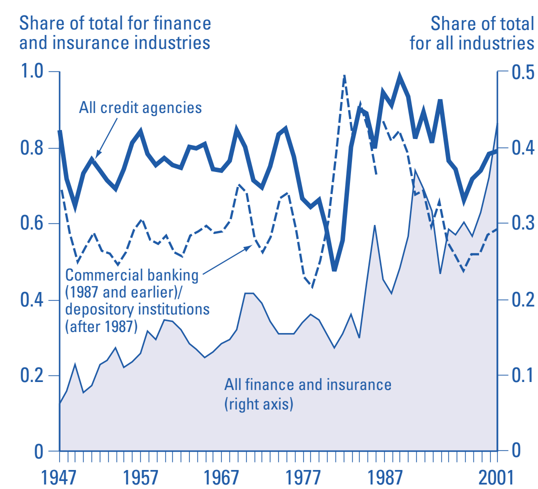
Corporate profits for finance and insurance industries have been rising as a share of total corporate profits, particularly since the mid-1980s. Although the data after 1987 are for all depository institutions, the broad trends do not suggest an industry in decline (see figure 20). While banks were returning to record-setting earnings in the 1990s, so were other financial-service providers (hence the decline in depository institutions' share of finance and insurance corporate profits), but the profitability of the banking sector has outpaced that of other financial sectors during the past few years.

To deal with the lack of detail in the BEA data on the performance of other financial-service providers, FDIC analysts have compiled and tracked profitability data available for publicly traded U.S. financial corporations. Because large conglomerates are involved, classifying financial enterprises into a single financial-service category is not always easy. In addition, like the BEA data, this information classifies banking to include both commercial banks and savings institutions. These estimates yield some very interesting patterns (figure 21).

First, the category of credit providers accounts for roughly three-fourths of the net income of financial corporations. And although this finding no doubt reflects declines in stock market valuations, this share of profits is comparable to the share in

Figure 20

Corporate Profits before Taxes, 1947-2001



1984—before the growth of U.S. financial capacity and the attendant decline in the share of nonfinancial-sector debt directly funded by banks. Second, profitability reflects the amount of intermediation services provided, not just the volume of funds brokered to investors. From this perspective, it is not surprising that government-sponsored enterprises have a relatively small share of profits compared with the volume of credit they channel, both directly and through asset securitization. Finally and most pertinent to the point of this paper, the banking industry (here, however, defined to include savings institutions as well as commercial banks) appears to have maintained its market share quite well in terms of profitability, rebounding from the problems encountered during the 1980s and early 1990s.

Output, Employment, and Compensation

The other economic-activity-based measures of bank market share that may tell us something about the importance of commercial banking in U.S. credit markets include output, employment, and compensation. These are useful because they indicate the resources allocated to the provision of services by banks compared with the resources used in the production of goods and services by other sectors.

Figure 22 illustrates the contribution of the finance and insurance industries to GDP (it also illustrates credit agencies' share of the total output of the finance and insurance sectors). Consistent with the growth of credit-market debt in the U.S. economy, financial-service firms account for a growing share of aggregate output (except for an increase during the debt buildup of the 1980s, credit agencies' share of financial- and insurance-sector output has been remarkably stable). During the past decade, the estimated output of depository institutions has been growing more slowly than the estimated output of other credit providers (i.e., depository institutions' share of the GDP of finance and insurance industries has been declining), but this trend may reflect the continuing contraction of the savings-institution industry.

Figure 23 depicts employment trends measured in terms of full-time-equivalent (FTE) employment. Until the mid-1980s, employment in the finance and insurance industries grew as a share of total employment in the U.S. economy; since then, employment growth in finance and insurance industries has lagged employment growth in other

Figure 21

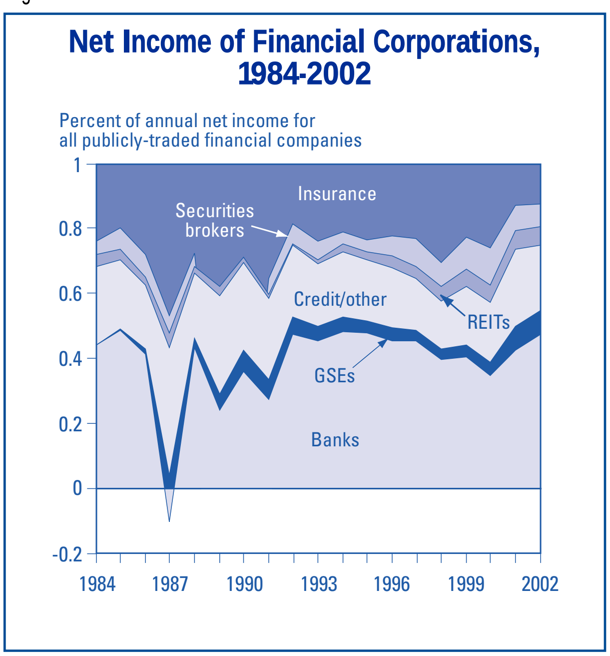
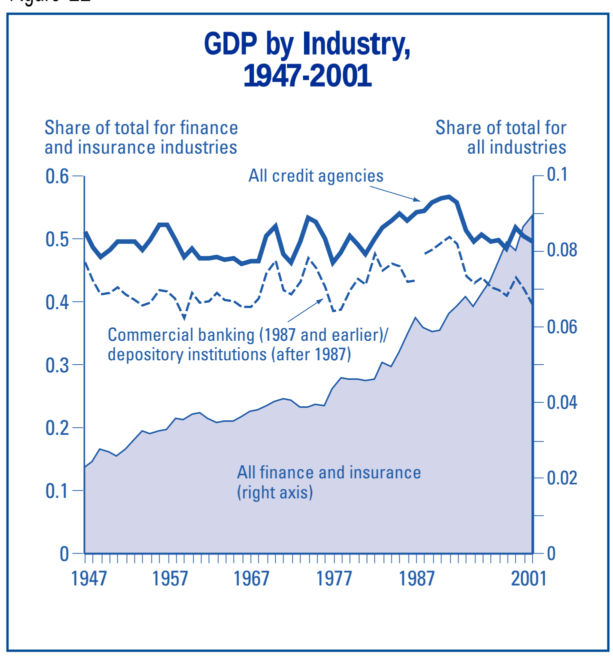


Figure 22



industries. This pattern probably reflects the application of computer technologies in financial-service industries, technologies that have increased the productivity per worker and therefore reduced the person hours needed to produce a given level of financial services. Commercial banking is an important driver in these trends. Until the 1980s, commercial banking's share of total employment in our economy was rising (as was employment by other credit agencies, which included savings institutions). The share of total employment in commercial banking flattened out in the early 1980s, when the use of ATMs became widespread, and the data for all depository institutions indicate a long-term decline in these institutions' FTE employment share during the past 15 years. Although employment growth for insurance industries has also been slowing, banking's declining share of FTE employment has been more pronounced.

Similarly, data on total compensation (see figure 24) indicate that although compensation in the finance and insurance industries has been steadily increasing as a share of total compensation paid in the U.S. economy, this increase has not been fueled by the growth of compensation in the banking sector. Since 1987, compensation paid by depository institutions has declined as a share of the total financial-sector pie. Nevertheless, because both employment and compensation trends reflect dramatic changes in the technologies used to deliver financial services, they are likely to overstate declines in the contribution of credit providers to economic activity.

Figure 23

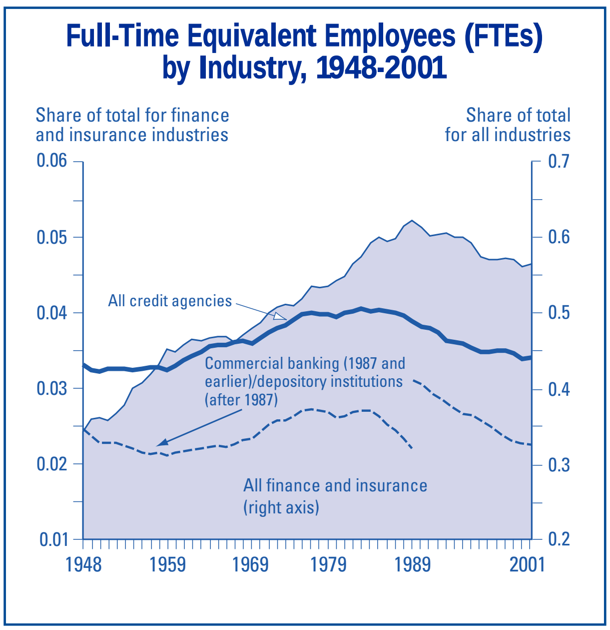
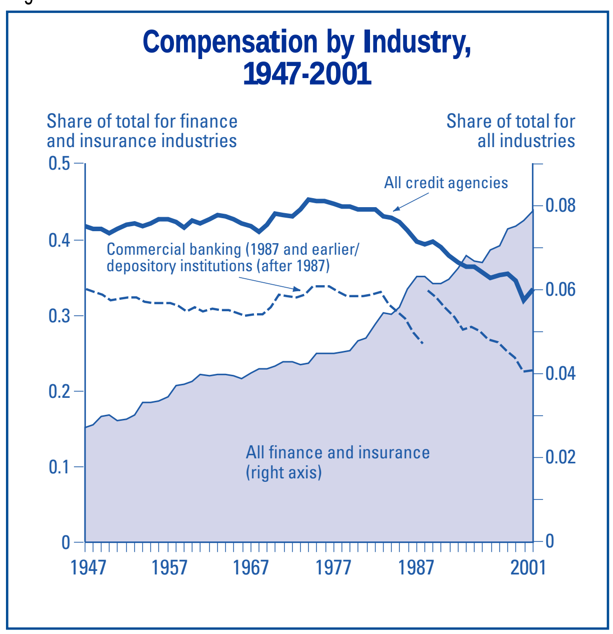


Figure 24



Conclusions

This paper assesses concerns that banks are becoming less important in U.S. credit markets, using available data to quantify the importance of commercial banks as credit providers—to quantify their "market share." Certainly as the debt capacity of the U.S. economy expanded in the 1980s, the share of nonfinancial-sector debt that was directly funded by banks declined. This decline was associated with a dramatic increase in the extent to which lending to households and businesses became securitized—that is, standardized, pooled, and funded by the issue of securities. The shift away from traditional intermediation towards asset securitization reflects not only changing credit technologies but also the activity of government-sponsored enterprises. The shift towards funding credit though securities markets also reflects fundamental changes in how individuals accumulate assets, due to changes in technology, pension regulations, and demographics.

Long-term instruments such as home mortgages are arguably better suited to securitization as a funding mode because of the maturity mismatch inherent in depository institution funding. However, it is harder to make the same case for the private securitization of some other types of loans—for example, credit card receivables. Nevertheless, banks play a prominent role in this type of securitization activity, so this may be a way for banks to fund loans effectively by issuing secured debt while they continue to be involved in all other aspects of the provision of credit (including the relationship with the customer and the responsibility for maintaining the quality of the pool of loans being funded). This alternative funding mode has allowed banks to make more loans than they would have been able to if they had relied on deposits alone as a funding source.

Thus, although commercial banking's on-balance-sheet activity has declined as a piece of the credit-market pie, the industry's off-balance-sheet activities are a growing source of income. Hence the ultimate finding of this study must be that banking is evolving but does not appear to be declining. Even according to some fairly traditional measures, the commercial banking industry remains remarkably important in funding credit flows in the United States—especially credit flows to nonfinancial businesses.

What, then, can we say about the future of banking? Although the extent to which commercial banks directly fund nonfinancial sectors in our economy has been stable since 1993, such stability does not preclude future declines. Future increases in the economy's debt capacity are not likely to take the traditional form of intermediation. Thus, it will continue to be important for researchers to study the evolving roles banks play in our financial sector, the risks these roles pose for the industry, and the implications of these evolving roles for broader financial stability. For example, policy makers very much need evidence about the risks inherent in the unbundling and repackaging of credit and about the implications of these risks.

The secular shift by banks toward funding business lending that is collateralized by real estate represents a shift to a type of lending that has been associated with localized banking-sector problems. This association is likely to be most problematic for community banks, which are more geographically focused in their activities, than for larger banking companies operating a wide range of profit centers over broader geographic areas. In general, off-balance-sheet activities imply an ever more critical role for large banking organizations.

The services that commercial banks provide in enhancing the liquidity and credit quality of claims funded elsewhere undoubtedly reflect the industry's unique status in our financial sector. The role of banks in making credit marketable indicates that commercial banking remains a critical force in the modern flow of funds that has contributed to the broader availability of credit in the U.S. economy.

APPENDIX: Investor Portfolio Trends

On the asset side of nonfinancial-sector balance sheets there have also been fundamental changes in the way individuals hold financial assets, particularly as changes in pension regulations and the availability of mutual funds took hold during the 1980s. In addition, changes in mechanisms used to conduct transactions and make payments over the past several decades appear to have reduced the extent to which individuals have to hold liquid assets as a share of their financial portfolios for transactions purposes.[52] Here we discuss the extent to which these trends have made it easier for the growing volume of securities issued by financial-sector firms to be absorbed.

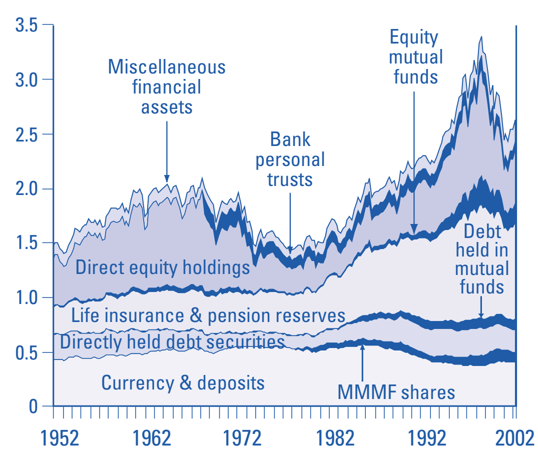
The growth of the mutual-fund industry can be thought of as a commoditization of investment opportunities in direct credit (and equity) markets. By pooling many securities, a mutual fund can reduce idiosyncratic risks and generate more-predictable risk, return, and liquidity, compared with any given securities in the pool. Thus by choosing particular types of securities, mutual funds can target particular characteristics for investors in terms of risk, return, and even the social or ecological consciousness of the underlying firms. Not only do personal investors hold these funds, but institutional investors—particularly life insurance and pension funds—also hold mutual-fund shares indirectly for their claimants.

Figure A.1 illustrates trends in the financial assets held by the personal sector. Because of inherently different risks and returns, we distinguish between holdings of debt and holdings of equity mutual funds by the personal-sector portfolio. The resulting picture shows a dramatic increase in individuals' accumulation of financial assets, an increase associated with the growth of pension wealth and increases in equities values (until the past few years, at least). The extent to which individuals' direct holding of mutual funds has facilitated the absorption of credit-market debt has been surprisingly modest. And although money-market mutual funds (MMMFs) have certainly displaced deposits somewhat, the overall level of transactions accounts held by individuals (defined in the Federal Reserve Board of Governor's Survey of Consumer Finances to include bank accounts and nonbank transactions accounts, such as MMMFs) as a share of GDP has remained fairly stable over time. However deposits are now a smaller share of the total portfolio of financial assets held by individuals than thirty years ago. The growth of insurance and pension reserves as a component of personal financial-asset holdings has been the most prominent trend during the past few decades.

In the early 1950s, roughly half of the personal sector's financial portfolio consisted of claims on traditional intermediaries, that is, life insurance companies, pension funds, and depository institutions (figure A.2). And as noted, these intermediaries mainly held debt issued by nonfi-

Figure A.1

Personal-Sector Financial Asset Holdings: Ratio to GDP



[52] For example, the increased use of credit cards allow individuals to actually pay for the transaction made during a month at a single point in time. Thus, individuals can transfer funds to their transactions accounts when they need to pay their credit card bills. At other points in times they may hold relatively little "money." Payment system changes are discussed in *The Effect on U.S. Banking of Payment System Changes* by Neil B. Murphy of Virginia Commonwealth University, which follows this article.

nancial-sector borrowers; thus, intermediation tended to involve a single layer: indirect liabilities held by individuals were used mainly to fund nonfinancial borrowers directly.[53] The other half of the personal-sector portfolio was in the form of directly held securities (i.e., stocks and bonds). Importantly, equities tended to be held directly by individuals—most likely individuals with greater financial resources.

The next few decades saw a shift in the personal-sector portfolio toward the indirect liabilities issued by intermediaries, including commercial banks and savings institutions. By the mid-1970s, direct holdings of securities had fallen to around a third of the personal sector's portfolio (we include custodial bank personal trusts, first reported in the FFA in 1969, in this share). Mutual funds still accounted for only 1 percent of the personal sector's portfolio, and money-market mutual funds did not yet exist. Traditional intermediation had increased its share of the personal-sector portfolio to almost 60 percent (figure A.3), and the market share allocated to deposits (and currency) peaked at this time at 35 percent. However, an interesting trend was under way as pension and insurance sectors were increasing their holdings of equities (not depicted in the figures). Thus, the decline in direct equities held by individuals was offset by increases in equity investments by these intermediaries.[54]

In recent decades, trends evident in the 1970s have taken off. As the size of the personal sector's financial portfolio grew, so did the issue of securities by financial intermediaries. Thus even though the share of bonds and equities directly held by individuals remain close to 30 percent, it is now much more likely that holdings of securities are funding financial intermediation. Importantly, this is also true of mutual fund holdings (including MMMFs) and claims on pension and insurance sectors, which now account for half of the personal-sector portfolio. (See figure A.4).

The bottom line is that households have shifted from holding securities directly to investing in intermediaries that invest in securities (and in

[53] As noted, the share of total credit market debt issued by financial firms was quite small, and insurance and pension funds didn't hold that much in the way of equities fifty years ago (only around five percent of their portfolios were in corporate equities).

[54] Credit-market debt issuance by financial intermediaries had also risen to 10 percent of total outstanding credit-market debt; hence it is important to point out that securities directly held by individuals were issued by financial firms as well as nonfinancial firms.

Figure A.2

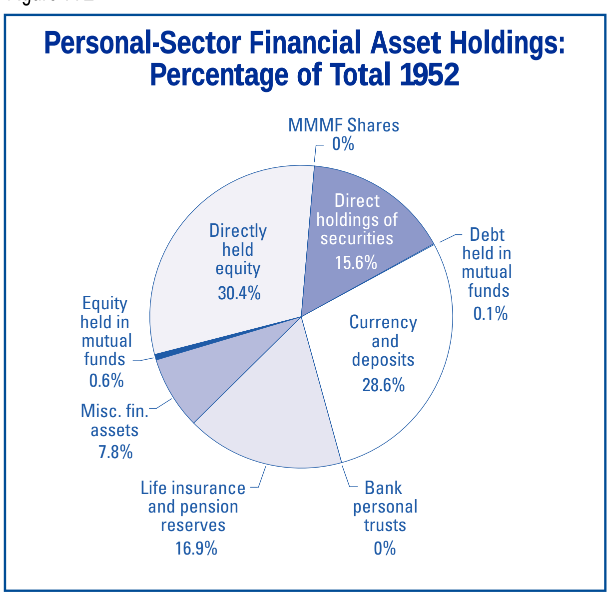
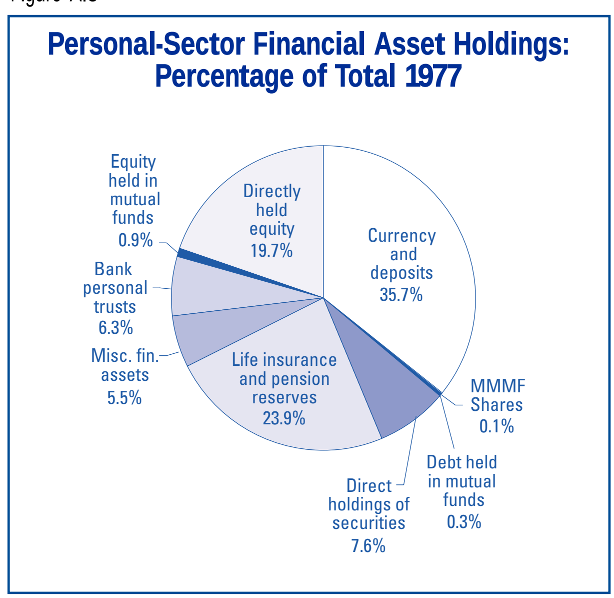


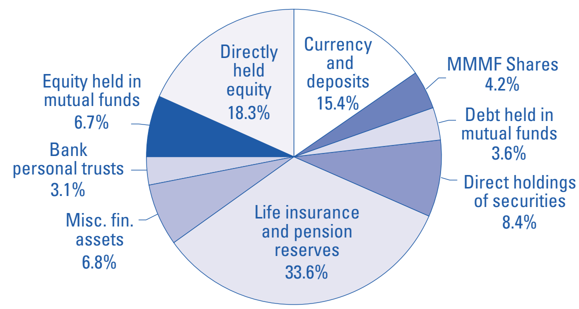
Figure A.3



mutual-fund shares) that fund financial intermediaries as well as nonfinancial borrowers. And whereas it used to be mainly wealthier households that held securities, mutual funds and pension plans have broadened the access of the average household's access to direct credit and equities markets. Thus personal portfolio trends have facilitated the absorption of the greater amount of debt being issued by direct credit markets—including debt issued by financial sectors—including ABS-issuers and federally-related mortgage pools.

Figure A.4

Personal-Sector Financial Asset Holdings: Percentage of Total 2002



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