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THE BANKING INDUSTRY

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Few industries are so significant that their conduct has a pronounced impact on the overall state of economic prosperity. Banking is the most prominent exception. When it works well, it lubricates the functioning of every other industry and thereby contributes to economic growth. But when it functions badly, the consequences can be grave. And grave they were in the first decade of the 21st Century. The actions of banking industry firms, combined with default by their regulators and imprudence by their customers, were key precipitating factors in America's "great recession" commencing in 2008, leading inter alia to substantial unemployment and under-employment.

In addition to the more conventional foci, this chapter will analyze the banking industry structural conditions and conduct that underlay the 2008 recession. It will use a broader definition of the industry than the one accepted in earlier editions of *The Structure of American Industry*. Specifically, in addition to the commercial banking -- i.e., retail and corporate -- industry segments, it will deal with savings and loan associations, specialized mortgage loan brokers, and the sometimes giant enterprises that pursue various facets of what is called investment banking -- e.g., orchestrating and underwriting corporate bond and stock issues, originating other market-traded securities, assisting companies making mergers, and much else. In doing so, detailed insights will be sacrificed that can best be gleaned by referring to earlier editions. Not all kinds of banking service provision can be analyzed, however. Short shrift must be accorded such significant components of an extensive "shadow banking" sector as credit unions, money market funds, lending by other investment funds, payday lenders, pawn-brokers, and recently emerging Internet-based banking services like PayPal and Bitcoin.¹

*This paper will appear in James Brock, ed., *The Structure of American Industry*, 13th edition (Waveland Press: 2015). The author is indebted to the editor and Robert Glauber for helpful comments.

¹ For an excellent survey, see "Shadow and Substance," special report, *The Economist*,

1. Banking Functions and Their History

As banking institutions have evolved over three millennia,² two key aspects are distinguishable in banking's traditional role of facilitating commercial transactions: bridging geographic space, and mediating differences in time preferences.

When the child prodigy Wolfgang Amadeus Mozart travelled with his parents to England in 1764-65, funds for travel and local lodging were derived in part through bank letters of credit brought from Mozart's home town of Salzburg, Austria, supplementing the Austrian coins Papa Mozart found difficult to exchange. In modern times, the same function is executed many millions of times daily by the writing and cashing of bank checks, processed through check-clearing facilities operated either privately or by governmental central banks. Or transactions can bridge geographic space through credit and debit cards -- an innovation dating back to the 1950s in the United States, and implemented again by bank-led clearing houses. Beginning in the late 1960s, consumers could obtain cash away from their home bank office, either within the United States or in other countries, by means of automatic teller machines -- an innovation former Federal Reserve Board chairman Alan Greenspan characterized as perhaps the greatest banking innovation of modern times. And even more recently, individuals can execute transactions electronically over Internet connections or (starting in bank-starved Africa) through cellular telephone-based banking facilities.³

Differences in financial transaction time frames are mediated when banks take deposits from individuals and business firms with cash in temporary excess (e.g., from paycheck to paycheck or when money-holders are saving for some large future outlay), or when firms are building up for or reaping the rewards of profitable inventory and equipment investments. Depositors are compensated with free checking account access or low checking fees. For deposits returnable only after some delay (e.g., on savings accounts and certificates of deposit),

May 10, 2014.

² For an historical overview, see the entries in Joel Mokyr, ed., *The Oxford Encyclopedia of Economic History* (Oxford University Press: 2003), vol. I, pp. 220-235.

³ On the latter, see "Africa's Tech Edge," *The Atlantic*, May 2014, pp. 82-86; and "Africa on Nothing but a Phone," *Bloomberg Business Week*, June 9, 2014, pp. 68-73.

they are compensated when the banks pay interest. Banks in turn take the funds received as deposits and loan them out to cash-short customers, who are charged interest for the service.⁴ The difference between banks' interest (plus fees) received and interest paid, less operating expenses and the cost of failed loans, determines the banks' profit. Bankers have understood for at least two centuries that the funds deposited with them are seldom withdrawn all at once, so they are able to leverage their cash reserves, loaning out at interest several times the amount of cash held in their vaults (or deposited with private or public central banks).

In banking as in other fields of endeavor, Murphy's Law (if anything can go wrong, it will) operates. Borrowers may default on their loans -- possibly in synchrony, if they are subjected to adverse local or macroeconomic business shocks -- leaving their bankers with worthless paper. And if fear over banks' solvency spreads throughout a population, depositors may seek to withdraw their deposits en masse in what is called a run or panic, leaving the banks with insufficient cash reserves to meet their clients' demands. History is replete with examples of such crises. A vivid panic example is seen in the hit 1946 motion picture, rescreened annually, "It's a Wonderful Life," starring James Stewart as George Bailey, a Bedford Falls, NY, banker.⁵

To deal with these problems, governments have implemented a diversity of measures. For one, full-fledged banks are typically required to obtain charters from their national or state governments, in the process demonstrating that they meet basic standards of financial capacity and honesty. Among other things, the diversity of banking functions allowed any given chartered bank was limited, e.g., under the Glass-Steagall Act of 1933 (repealed in 1999), requiring a separation of commercial

⁴ In some Muslim nations, interest is not allowed under religious strictures. On how banking systems adapt, see Zamir Iqbal and Abbas Mirakhor, eds., *Economic Development and Islamic Finance* (Washington: World Bank, 2013).

On lending too, banks are being supplemented through Internet-based facilities -- notably, "peer-to-peer" lending and (for longer-term investments) so-called crowdfunding. See e.g. "Banking without Banks," *The Economist*, March 1, 2014, pp. 70-71; and "The New Thundering Herd," *The Economist*, June 16, 2012, pp. 71-72.

⁵ See more generally (in the "Suggestions for Further Reading") Kindleberger and Aliber (2005).

and investment banking functions. Second, governmental banking authorities also engage in more or less continual regulation to ensure that their chartered entities are conforming to principles of prudent banking, among other things maintaining a ratio of cash reserves to loans that reduces the risk of being caught short in a run or panic. Third and perhaps most important, national (and in the case of Western Europe, multi-national) authorities have created central banks to be a lender of last resort to operating banks experiencing temporary liquidity difficulties and to monitor their charges' behavior, seeking to ensure conformity with good banking practice. In the United States, the lender of last resort function has been exercised by the Federal Reserve System since 1913, following a century of dispute between disciples of the first U.S. Secretary of the Treasury, Alexander Hamilton, arguing for a central bank, and legislators sharing the distrustful views of Andrew Jackson (U.S. president in 1829-1836).⁶ The Federal Reserve, however, failed to live up to its creators' hopes during the Great Depression of 1929-1933 (triggered by massive losses when soaring stock prices, fueled inter alia by banks' "margin" loans, collapsed). As a result, the Federal Deposit Insurance Corporation (FDIC) was created in 1933 (followed by similar agencies to be discussed later) to provide insurance to federally-chartered bank depositors, assuring that their deposits would be reimbursed at least up to some minimum level in the event of a bank run and/or failure. In 2014, deposits were insured up to \$250,000 by the FDIC.

Given pervasive regulation extending at times to the interest rates banks could pay to their depositors, banking and especially savings banking became characterized in the 1950s by what some called "the rule of three" -- "Pay three percent interest on deposits, add three to charge six percent on loans, and be off to the golf course at three in the afternoon."

This did not endure. Beginning in 1979, Federal Reserve Board chairman Paul Volcker sought (in the end, successfully) to choke off burgeoning inflation by extracting liquidity from member banks and driving up interest rates -- to a peak prime rate of 18.87 percent in 1981. Interest rates on bank customers' certificates of deposit and money market funds rose accordingly. The savings and loan banks, which specialized in

⁶ For articles analyzing the Federal Reserve's creation and its functioning, see the *Journal of Economic Perspectives*, Fall 2013.

providing mortgage loans, were subjected to a ferocious squeeze. Their loan portfolios consisted mainly of 20 to 30-year mortgages returning interest rates in the range of 6 to 9 percent. But the S&Ls were constrained by deposit interest rate ceilings -- in 1978, following inflation, 5.25 percent -- and their depositors defected en masse to more attractive venues. A liquidity crisis ensued. Depositor interest rate caps were removed, but many banks lapsed into unprofitability and failed, with the number of insured U.S. savings and loan associations falling from 4,053 to 3,040 -- i.e., by 25 percent, between 1978 and 1983.⁷ Restrictions on savings banks' allowed lending venues were also relaxed, but as the institutions sought new lending opportunities, many flocked to burgeoning oil-producing states, only to experience new failures when petroleum prices fell from \$31 per barrel in 1981 to \$11 in 1988, propelling petroleum-based housing and investment project loans into default. Altogether, the number of federally insured savings and loan institutions dropped, despite some new additions, to 2,570 in 1991 -- 37 percent less than in 1978. Battered also by the S&Ls' troubles was their specialized insurer, the Federal Savings and Loan Insurance Corporation, whose debts were assumed by the general government treasury. FSLIC was liquidated in 1989 and its insurance functions were taken over by the Federal Deposit Insurance Corporation.

New institutions and new financing methods evolved to supplement the diminished number and role of traditional savings and loan banks. In 1978, savings and loan banks held 45.3 percent of total U.S. mortgage debt.⁸ By 2006, the S&Ls' share of greatly expanded mortgage debt by value had fallen to 8.0 percent. Taking the S&Ls' place were mostly long-standing institutions, but with a greatly expanded role. The most prominent new development⁹ was the enormous growth of mortgage pools -- that is, thousands of mortgages bundled together to form the collateral for mortgage-backed bonds sold to banks (both domestic and foreign), insurance companies, and other private sector investors. Such bonds encompassed 49 percent of all U.S. mortgage debt by value in 2006. Scores of mortgage-

⁷ The counts here are from various editions of the *Statistical Abstract of the United States*.

⁸ The source of these data is the *Economic Report of the President* (2013), p. 415. Other holders in descending order were commercial banks, individuals, life insurance companies, private-sector mortgage pools, and federal government home finance agencies.

⁹ It was not completely new. Some larger housing projects were financed through mortgage-backed bonds in the 1920s.

backed bonds could in turn be combined into "collateralized debt obligations" (CDOs) sold to the public in differentiated risk tiers. Still another innovation of the 1990s was the issuance of "credit default swaps," a kind of insurance in which one party agreed for an annual fee to reimburse losses that might be incurred if bonds defaulted on their obligations.

Many of the mortgages underlying mortgage-backed bonds were originated by conventional and (especially) new, aggressive banks specializing in mortgage issue. Traditionally, S&Ls held many and even most of the mortgages they made in their own portfolios. But the newer mortgage lenders tended to sell them off to investment banks for packaging and collateralized sale. Other collateralized mortgages came from commercial banks, and still others from a growing set of mortgage brokers, who performed no traditional bank lending operations, but who wrote mortgages and promptly sold them off to investment bank bond bundlers.¹⁰ Unlike old-line S&Ls, the brokers kept no "skin in the game" -- that is, they retained no equity position in the loans they originated, and so they had the weakest possible incentives to ensure that the loans were sound. "Skin in the game" also declined sharply as more conventional mortgage lenders bundled or sold off their individual mortgages into bond issues.

Another development paralleling the issuance of mortgage-backed bonds was the creation and growth of government agencies that bought mortgages from the original bank issuers and then issued bonds backed by the mortgages they held. A pioneer was the Federal National Mortgage Association (Fannie Mae), created by the U.S. Congress in 1938. It was originally a government-owned enterprise, but in 1968 it was in effect privatized, with common stock issued to replace the original government financing. A parallel institution, the Federal Home Loan Mortgage Corporation (Freddie Mac) was organized as a quasi-private entity in 1970. It was widely assumed that despite their ostensible private-sector status, Fannie Mae and Freddie Mac would be backed by the government in a crisis. Both tended to enforce high standards of credit-worthiness on the banks from which they purchased mortgages, although they were subjected to increasing Congressional pressure beginning in the 1960s and

¹⁰ Data on the rapid growth of these mortgage brokers are sparse. They are subsumed under a catch-all category of the standard industrial classification, NAICS code 6163, categorized as loan brokers. The number of entities covered by slightly broader code 616 exploded from 3,164 in 1975 to 20,844 in 1994.

escalating in the first decade of the 21st Century to encourage universal home ownership inter alia by relaxing credit standards. Parallel functions were pursued by the Federal Housing Administration (created in 1934), which insured federally-chartered banks' issues of mortgages for government employees, military veterans, and low-income citizens.

Between the years 2000 and 2007, mortgage debt in the United States grew from \$6.8 trillion to \$14.6 trillion. In 2005 alone, \$800 billion of new mortgage-backed bonds were issued bundling so-called "subprime" loans -- that is, those with credit ratings below conformity with Fannie Mae and Freddie Mac standards.¹¹ Home ownership rates for a growing population of households rose from 64 percent in the 1990s to 69 percent in 2004. A housing construction boom was accompanied by rapid home price inflation. Average single-family home sale prices, measured by the Case-Shiller 20-city index, doubled between the years 2000 and 2006, reaching a peak in July of 2006.

Home buying became an alluring economic prospect. One could buy today and sell in two years at a handsome capital gain. Many so-called subprime mortgages were issued by brokers and non-traditional banks without requiring the conventional 20 percent down payment, with minimal scrutiny of past credit records, and with no investigation whether the buyer had reliable income sufficient to meet monthly payments.¹²

A few voices warned of a bubble. They were largely ignored. Among other things, the Federal Reserve Board chose not to implement credit-tightening measures, in part because its leaders believed that, with the issuance of mortgage-backed bonds, CDOs, and credit default swaps, lenders' risks were widely diffused throughout the U.S. economy and abroad. However, a bubble it proved to be, and it burst. The price trend reversed, and average home sale prices fell 32 percent between 2006 and 2009, returning to only 81 percent of the 2006 index level by June 2014. Many new home owners found the value of their homes to be lower than the value of their mortgages. Mortgage payment delinquencies soared from 4.5 percent of residential loans in 2005 to 9.4 percent in 2009 (6.5 percent on

¹¹ See Tett (2009), p. 95.

¹² A bank official reported that loan officers earned commissions seven times larger on subprime loans than on prime loans. See "A Banker Speaks, with Regret," *New York Times*, Dec. 1, 2011, op ed page.

conventional and 25.5 percent on subprime loans).¹³ The foreclosure rate rose from 1.0 percent to 4.3 percent (15.1 percent on subprime loans). The value of new housing construction fell 38 percent from 2006 to 2008 and 55 percent by 2010, precipitating rapidly increasing construction industry unemployment, with adverse multiplier effects through the rest of the U.S. economy.¹⁴ The drop in the market value of homes, new and old, was a major reason for the measured 39 percent decline in the median U.S. family's net financial worth from 2007 to 2010.¹⁵ Students in introductory economics classes learn about the Keynesian consumption function, which states that aggregate consumption rises and falls with aggregate income. But a deeper analysis shows that consumption is also correlated with consumers' wealth.¹⁶ The decline in the value of the typical U.S. consumer's most important wealth item, housing, aggravated the decline in consumption and the severity of the "great recession." Civilian unemployment rates reached 10.0 percent in October 2009, along with a three percentage-point increase in part-time employment for individuals actually seeking full-time work plus significantly reduced labor market participation rates because jobs were so hard to obtain. Meanwhile, the banks that held in their portfolios large amounts of mortgage-backed bonds were plunged into jeopardy, and some (such as Countrywide, Washington Mutual, and Corus) that had specialized in issuing subprime mortgages teetered on the brink of failure until rescued at federal government instigation. Even harder hit were Fannie Mae and Freddie Mac along with the banks and insurance companies (notably, American International Group) that had issued large volumes of credit default insurance against collateralized debt obligations. We return in Section 6. to the governmental policy interventions and changes that were driven by the mortgage-banking-induced crisis of 2008.

¹³ Unless otherwise indicated, aggregate statistics cited in this chapter are drawn from various issues of the *Economic Report of the President*, the *Statistical Abstract of the United States*, and Federal Reserve Board flow of funds reports.

¹⁴ Interestingly, Canada did not experience a similar crisis because its banks had remained conservative in their mortgage lending.

¹⁵ See "Changes in U.S. Family Finances from 2007 to 2010: Evidence from the Survey of Consumer Finances," *Federal Reserve Bulletin*, vol. 98 (June 2012), p. 1 et seq.; and Edward Wolff, "The Asset Price Meltdown and the Wealth of the Middle Class," National Bureau of Economic Research working paper 18559 (2012).

¹⁶ See Charles Calomiris et al., "The Housing Wealth Effect," National Bureau of Economic Research working paper 17740 (2012), who report that a dollar change in housing wealth alters consumption expenditures by five to eight cents.

3. Market Structure

Entities that specialize in banking functions, as characterized above, are a diverse but interlinked lot. Table 1 provides a breakdown for assets held in 2010 by the principal entities supplying banking service in the United States, along with other groups characterized under the broader "finance sector" rubric. The core banking functions held roughly 44 percent of total finance sector assets. Commercial banking, the largest single component, can be divided further into three main categories: corporate banks, which provide a broad array of banking services to relatively large customers; retail banks, which service ordinary consumers and act as the principal lenders and account-holders for small businesses; and investment banks, which in recent years (following repeal of the 1933 Glass-Steagall Act) have intermingled corporate banking with helping corporations and government agencies float public bond and stock issues, advising companies contemplating merger, originating bundled mortgage bonds and derivative instruments such as credit default swaps, and trading securities on their own account, among other things.

3.1. Defining Relevant Banking Markets.

To define the parameters of market competition, one must draw lines between firms whose services comprise meaningfully close substitutes for one another versus those that substitute poorly and may be more complements than substitutes. This is not easily done.

Consider retail banking. The typical family or small business usually places high value on the convenience of a local banker, which can be either a home-town bank or the local branch of a possibly much larger bank. Individual consumers, small firms, and local branches of nationwide corporations could in principle establish their accounts with a distant bank, but there are compelling advantages in being able to visit a local branch regularly to deposit or obtain cash (including that roll of quarters needed to feed parking meters) and to meet face-to-face with a bank representative for trouble-shooting and special functions such as transferring funds across national borders. For longer-term savings activities, however, retail banks compete directly with local savings banks, credit unions, and

also (especially for certificates of deposit larger than \$10,000) with distant banks and money market funds. And when either a consumer or a local business firm seeks bank loans, local retail banks and (with some attenuation, local branch managers) are better able to assess would-be borrowers' character, operating specifics, and credit-worthiness.¹⁷ As the experience with mortgage foreclosures following the 2008 crisis showed, local bankers are also more astute than remote paper-pushers in "working out" situations where the borrower has fallen into arrears on monthly payments. Thus, localized banking lubricates the wheels of business and mortgage finance.¹⁸

Larger business enterprises usually find it convenient to do much of their banking business with sizeable regional, nationwide, or (for multinational enterprises) border-straddling commercial banks.¹⁹ Their loans come in bigger chunks, and if small banks issued them, they would be incurring too much portfolio risk, where one or two defaults could topple the whole banking enterprise. Large banks' ability to diversify portfolio risks also means that their own capital-raising is less risky, permitting the payment of lower interest or dividend rates for a given amount of capital raised.

3.2 Aggregate Concentration of Banking Activity

Given this mix of advantages, what role do institutions of diverse size play in the over-all scheme of U.S. banking? In 2010, 86 banks with assets of \$10 billion or more held 81 percent of the assets of the total of 6,529 entities classified

¹⁷ See e.g. "Rural Banks Know Something Big Banks Don't," *Bloomberg Business Week*, Oct. 21, 2013, pp. 17-18; and for a statistical study showing lower loan default rates at rural banks, Robert DeYoung et al., "Small Business Lending and Social Capital: Are Rural Relationships Different?" working paper, University of Kansas (June 2012).

¹⁸ An analogous advantage of closeness occurs in high-technology venture capital financing (probably classified under "closed end funds" in Table 1). However, there the advantage comes not so much from geographic proximity as in the necessity of maintaining close advisory and monitoring relationships (perhaps by accumulating frequent-flyer miles) with technologically pioneering entrepreneurs (who often possess more technological than business expertise). See Ronald Gilson, "Engineering a Venture Capital Market," *Stanford Law Review*, vol. 55 (2003), pp. 1067-1099. Given this, venture capital funds commonly limit the number of entities they finance in any given cohort to approximately 40.

¹⁹ In the London international banking center, 250 foreign-based banks were said to operate. "Now you see them...," *The Economist*, June 21, 2014, p. 57.

as commercial banks.²⁰ The 424 banks with assets between \$1 billion and \$10 billion had a share of nine percent. Thus, banking in the United States is preponderantly a large-enterprise activity.

The large-bank share has also been rising briskly in recent decades. Figure 1 shows how the combined asset share of the ten largest banks changed between 1985 and 2012.²¹ The reference group (i.e., denominator) comprises the assets of all banks classified as providing "core banking functions" in Table 1. During the 1980s, the ten largest banks held a share of total core banking sector assets in the high teens. But their share began rising briskly in the 1990's, reaching 55 percent before regressing into the high '40s a year in advance of the crisis culminating in 2008. Excluded from the graph's coverage are otherwise-qualifying Fannie Mae and Freddie Mac because of their quasi-governmental (and eventually, de facto government-owned) status during the period covered.

3.3: Merger Activity

A major reason for the ten largest banking institutions' rising share of total core banking assets was a concatenation of large and small bank mergers. Figure 2 traces the number of mergers between 1975 and 2013 in two categories. "Resolutions" are mergers brokered by government regulatory authorities to take failing banks and put them under the ownership of still-solvent entities. "Unassisted mergers" are those initiated by the banks themselves without government intervention. Resolutions peaked during the savings and loan bank crisis of the 1980s, ebbed, and then surged again following the crisis beginning in 2008. The 2008 crisis precipitated several particularly large resolution mergers. Countrywide Bank, a

²⁰ The data, like many of the statistics used in this section, come from the "Banking, Finance, and Real Estate" section of the Statistical Abstract of the United States: 2012.

²¹ They were, in descending 2012 size order, JP Morgan Chase, Bank of America, Citigroup, Wells Fargo, Goldman Sachs, Morgan Stanley, Bank of New York Mellon, US Bancorp, Capital One, and PNC. The source was annual "Fortune 500" tabulations by *Fortune* magazine. Alternative sources such as *The Banker* exclude mid-giants Goldman Sachs and Morgan Stanley during the 1990s after their emergence as listed corporations from partnership status and until their transition in 2009 to bank holding companies. On the broader historical transition from traditional partnership organization, not yet fully consummated, see Alan D. Morrison and William J. Wilhelm, "The Demise of Investment-Banking Partnerships: Theory and Evidence," *Journal of Finance*, February 2008, pp. 311-350.

leading issuer of subprime mortgages, with 2007 assets of \$200 billion, was acquired in a government-brokered merger by the Bank of America in February 2008.²² Resolution mergers followed in later months of 2008 for investment bank Bear Stearns, with 2007 assets of \$350 billion (acquired by JP Morgan Chase); mortgage specialist Washington Mutual, with assets of \$346 billion (also acquired by JP Morgan Chase); and general-purpose commercial bank Wachovia, with assets of \$707 billion (acquired by Wells Fargo).

Unassisted mergers also had two peaks, both in the 1980s and 1990s, but a relatively high level of activity in all periods. Tapping Federal Reserve Board data, Stephen Pilloff (2008) estimates that between 1990 and 2005, there were nearly 3,800 bank mergers involving \$3.6 trillion in assets.²³

Figure 3 tracks in more detail the principal domestic mergers effected by the six leading U.S. banking corporations (measured by assets) as of the end of 2008.²⁴ Altogether, 53 substantial entities are found to have come together into the six named survivors. The 1985 asset ranks of the merging banks are given in parentheses following the company names. In four cases marked (circle L), the bank taking the lead as acquirer changed its name to that of the acquisition target, e.g., when North Carolina-based Nationsbank (still earlier, called North Carolina National Bank) consummated a merger with the venerable California-based Bank of America in 1998. Legibility limitations allow Figure 3 to track only the most significant mergers. At the end of each surviving institution trajectory is a number followed by "SM," for small mergers. The count, based mainly upon published company histories in *Moody's* (now *Mergent's*) *Bank & Finance Manual*, is almost surely incomplete, but altogether, 139 acquired institutions too small to be diagrammed in Figure 3 were found. In total, the six largest survivors of 2008, with end-of-2010 assets amounting to \$9.3 trillion, stemmed in their recent history from 192 merged entities.

²² On adverse post-merger consequences, see "In Deal, Big Bank Extends Retreat from Mortgages," *New York Times*, January 8, 2013, p. A1.

²³ See the "Suggestions for Further Reading."

²⁴ The chart originally appeared in F. M. Scherer, "A Perplexed Economist Confronts Too Big To Fail," *European Journal of Comparative Economics* (web <http://eaces.liuc.it>) (2010), pp. 267-284.

3.3 Economies of Scale

The rising share of the top ten banking enterprises and their extensive merger activity pose the question, are there compelling economies of scale and scope in banking?

Numerous statistical studies have attempted to provide answers. Some have focused on net profitability, some on interest costs, and some on non-interest expense ratios. Much of the research has been done by the Federal Reserve Board economics staff, who had the advantage of greater data access. Reflecting on that work, former chairman Alan Greenspan observed in 2010 that research by Federal Reserve staff "has been unable to find economies of scale beyond a modest-sized institution."²⁵ An early summary of Federal Reserve staff studies concluded that cost savings were realized mainly through bank size increases up to deposit levels of approximately \$500 million -- far below the scale of the four largest trillion-dollar banks.²⁶ Citing a later staff study, former Fed staff economist Steven Pilloff (2008) reported that "the precise point at which scale economies disappear" (or are overcome by diseconomies) appears to lie at asset levels around \$10-25 billion -- a small fraction of the trillion-dollar levels surpassed by four banks included in Figure 1.²⁷ Pilloff found non-interest cost as a percent of an income measure dropping from 62 percent for banks with assets between \$0.5 and 1.0 billion to 57 percent for banks with assets in the range of \$1-10 billion. A still newer study found non-interest cost ratios falling (by unreported amounts) at smaller sizes but rising at scales well below the asset and deposit volumes attained by the largest banks.²⁸ On the other hand, the authors' equations reveal persistent increases in banks' net income ratios out to the largest size ranges -- a result that could reflect either scale economies or greater pricing power for the largest banks.

²⁵ "The Crisis," address at the Brookings Institution, second draft (found on the WWW), March 9, 2010, p. 32.

²⁶ Patrick H. McAllister and Douglas McManus, "Resolving the Scale Efficiency Puzzle in Banking," *Journal of Banking and Finance*, vol. 17 (April 1993), pp. 389-405.

²⁷ See his chapter in "Suggestions for Further Reading," pp. 286-287.

²⁸ J. L. Stimpert and Judith A. Laux, "Does Size Matter? Economies of Scale in the Banking Industry," *Journal of Business and Economics Research*, vol. 9 (March 2011), pp. 47-55.

A newer study by James Kwak reaches similar but more interesting conclusions.²⁹ Kwak focused on banks' average ratio of interest paid out as a percentage of deposits in 2009. Controlling for diverse measures of portfolio risk, his initial finding was that interest costs fell by roughly 20 basis points (i.e., one fifth of one percent) with each tenfold increase in asset size, e.g., from \$10 billion to \$100 billion. Being at a scale shown by Federal government intervention in the 2008 financial crisis as "too big to fail," however, reduced interest costs by 50 basis points -- an advantage that did not appear when a comparable analysis was made for pre-crisis year 2004. In that earlier year, he found an apparently persistent decrease in interest costs of nearly 16 basis points with each tenfold increase in assets. Interpreting his results for 2009 is made difficult by the fact that the average interest cost for all banks, large and small, was only 1.97 percent of assets. This occurred when the Federal Reserve was lending out unprecedented amounts at very low interest rates to both small and large banks and depressing interest rates generally through its open market bond purchases. Nevertheless, Kwak's results for 2004 appear to support the hypothesis that modest financing economies of scale persist out to the size of the very largest banks.

All of the scale economies reviewed thus far take a blunderbuss approach, estimating profitability or cost ratios for the aggregate of banks' activity. The only research known that focuses on narrower facets of banking activity was undertaken by the Clearing House Association, which obtained the needed data from at most ten of the 17 large banks that comprise its owners.³⁰ Nonlinear regression equations were computed taking cost indices (in most instances, with many costs excluded) as the dependent variable and as independent variable an index of bank size, with the task-specific transaction volume of a bank with assets of \$50 billion used as a base. The activities for which estimates were presented were online bill paying, check processing, credit card processing, debit card

²⁹ "Who Is Too Big To Fail?" paper presented at a Fordham University conference in March 2010. A later review of 42 studies by the U.S. Government Accountability Office, "Large Bank Holding Companies: Expectations of Government Support," GAO Report 14-621 (July 2014), found that the interest cost advantage of "too big to fail" banks ebbed following the crisis years 2007-2009, but that some indications of an advantage persisted.

³⁰ *Understanding the Economics of Large Banks* (2011), found on the Association's web site. A more detailed appendix to the report was obtained privately from the association's chief economist.

processing, automated clearing house transaction processing, and wire transfer processing. In all cases the cost curves slope downward, implying economies of scale persisting even out to the size of the largest Clearing House owner banks (presumably, Bank of America, JP Morgan Chase, and/or Citigroup). The curves flatten out, consistent with other scale economy studies, implying diminishing marginal benefits of size. But a curious puzzle is posed. For all but the debit card cost curve, one observes in the accompanying scatter diagrams relative costs as low for some of the smallest banks (i.e., down to \$50 billion) as for the largest banks, even though on average the smaller banks have higher cost ratios. If some small banks can achieve cost ratios as low as the largest banks, is it because they can overcome the disadvantages of smaller scale? Or might there be a dynamic process that leads most, but not all, banks with the lowest costs to achieve very large size, leaving behind mostly high-cost banks but for unexplained reasons also some fully efficient entities? How the puzzle might be reconciled is not addressed in the Clearing House study.

The study acknowledges that some of the estimated operating cost savings might be achieved through means other than having individual banks reach very large scale, e.g., through vertical disintegration and centralization of high-scale-economy services in organizations that provide the desired services to all banks on a for-fee basis. Given strong scale economies, the disintegrated functions would have substantial monopoly power and presumably might be subject to "fair" price regulation. But on this point, one can only speculate. Much remains to be learned on the scale economy question.

3.4 Conventional Measures of Seller Concentration

In applying the structure-conduct-performance paradigm to explain the functioning of industries, it is customary to compute concentration ratios -- i.e., the combined share of a few leading participants in markets defined to encompass all sellers able to provide meaningful product and service substitution. The higher that share, especially when the four-firm share exceeds 50 percent, the more likely it is that the firms will recognize their oligopolistic interdependence and set prices at or near monopoly as compared to competitive levels. As we have seen in Figure 1, ten institutions account for 40 to 50 percent of all core banking assets. But that elite group

operates in a plethora of markets and hence is defined too broadly to be meaningful in the oligopoly sense.

For commercial banking, and especially retail banking, rich concentration statistics exist, collected mainly by the Federal Reserve Board and affiliated regulatory agencies. Drawing upon the richer array of data presented in Pilloff (2008, p. 277), we define two categories that approximate meaningful areas of competition among retail-oriented banks -- for the larger cities, metropolitan statistical areas (as defined by the U.S. Census Bureau), and for rural areas, county-wide activity. For three benchmark years, the average three-firm concentration ratios were as follows:

| <u>Year</u> | <u>Metropolitan Areas</u> | <u>Rural Counties</u> |
|-------------|---------------------------|-----------------------|
| 1990 | 67.5 % | 89.6 % |
| 2000 | 64.5 | 87.2 |
| 2006 | 61.2 % | 85.5 % |

These, to repeat, are averages. The values in individual geographic markets vary both upward and downward by substantial amounts. But from the data, it is clear that local banking markets tend on average to be concentrated enough to expect the kind of pricing (e.g., in setting loan interest rates and time deposit interest payment rates) associated with oligopoly. There is also a weak downward trend in the concentration ratios over time, probably because of tough antitrust constraints against local bank mergers -- a topic to be discussed later.

For corporate and investment banking, relevant geographic markets are much broader -- at least regional, often national, and for multinational and export-oriented clients, international. Here, alas, there are virtually no definitive data. The closest known approximation to a systematic tabulation, by the previously mentioned Clearing House Association, is reproduced in Table 2. The relevant market is defined as nationwide, which is appropriate for many of the categories but certainly not for activities such as retail deposits, residential mortgages, consumer loans, and small business loans. But for many of the other categories -- i.e., 16 of the 22 listed -- six-firm concentration ratios are higher than a 50 percent oligopoly threshold. Especially concentrated are key investment bank functions such as supporting the flotation of new common stock (equity) and debt issues, issuing

syndicated (multi-bank) loans, and advising companies contemplating mergers. Also concentrated is the maintenance of credit card networks -- done by a relatively few large entities.³¹

The Clearing House study provides little information about its sources and methodology in compiling the Table 2 figures, and cavils can be raised. Among other things, the 100 percent share for merger and acquisition support is misleading, because multiple banks often advise companies on a single planned merger, and so the shares of all advisors sum to more than 100.³² This is true also for the flotation of new corporate stock and debt issues, in which banks join together in syndicates. But that caveat suggests an important behavioral insight. The staffs of supposedly competing banks do work together on many problems, and the relationships they form could provide a foundation for cooperation in such matters as setting fees, interest rates, and other "prices" for their services and clearing the trades of such "derivatives" as commodity future contracts and credit default swaps.³³ On this more will be said in the next section.

The market concentration insights provided in Table 2 can be supplemented by information extracted from the trade literature. Five U.S. banking firms are said to write 97 percent of credit default swaps -- an activity that swelled to \$62 trillion in nominal value during the housing bubble of

³¹ The leaders, according to a 2001 Nilson report, were American Express, Chase (now JP Morgan Chase), Bank of America, Citigroup, and Capital One. Although American Express now takes time deposits, that activity is presumably small relative to its credit card operations, and therefore American Express was excluded from the top 10 bank calculations underlying Figure 1.

³² See for example "On Wall Street, Deal Makers Have a Renewed Optimism for the New Year," *New York Times*, January 3, 2012, business section.

³³ See e.g. "A Secretive Banking Elite Rules Derivatives Trading," *New York Times*, Dec. 12, 2010, p. 1.

A related mystery: A study at Oxford University found "no good reason" why fees charged by banks for supporting initial public securities offerings in the United States remained at 7 percent when they approximated 4 percent in Europe. See "High-speed Slide," *The Economist*, Nov. 14, 2009, p. 86. An investigation of fees by the U.K. Office of Fair Trading explained the level of fees (said to have averaged 3 percent) as a result of limited shopping around by would-be stock issuers, under heavy time pressure and with long-term ties to a particular investment banking house. "Vexed in the City," *The Economist*, Feb. 3, 2011, p. 66.

2007.³⁴ Five banks were said to dominate European and American trading in over-the-counter derivatives in 2012. Consistent with the Clearing House estimates, the four largest U.S. banks are reported to issue and manage two-thirds of all credit cards.³⁵ Four institutions account for roughly two-thirds of mutual fund holdings (an activity excluded from our core banking definition). After a merger, the largest agent was expected to handle 70 percent of American corporate stock transfers.³⁶ Clearly, pockets of tight oligopoly exist in parts of the banking industry served mainly by the largest entities. But systematic information is maddeningly sparse.

4. Conduct

The conduct of firms providing banking services can be examined through statistical studies of the prices set and through more qualitative historical investigation of the policies pursued.

Statistical studies suggest that banks charge higher interest rates on loans and pay lower interest rates on time deposits in local (i.e., metropolitan or rural) areas in which the leading banks have relatively high market shares, that is, in which tight oligopoly conditions are more nearly approximated.³⁷ Most of the known statistical studies date from a decade or more in the past, and it is questionable whether the deposit rate results hold up for more recent periods, in which savers had ready telephonic or computer access to distant banks offering particularly high interest on larger certificates of deposit. During the early pre-crisis years of the 21st Century, for example, the highest CD interest rates were offered by such banks as Countrywide (with branches in many parts of the United States) and Corus (a Chicago bank specializing in multi-family housing loans). Comparative information on rates was available from major newspapers, facilitating savers' search.

The most striking qualitative feature of that tumultuous first decade was an increase in the complexity of banks'

³⁴ "Projecting the Impact of Default on U.S. Banks," *Bloomberg Business Week*, Nov. 13, 2011, p. 44, and "Rising Risk," *Fortune*, Oct. 13, 2008, p. 140.

³⁵ "The End of Wall Street," *Bloomberg Business Week*, April 10, 2010, p. 42.

³⁶ The market share estimate was received in an e-mail broadcast from the American Antitrust Institute, August 30, 2011. The merger was consummated in 2012.

³⁷ For a review of the studies, see Pilloff (2008), pp. 284-287.

financing instruments, especially for mortgage and other consumer loans. We have seen already the greatly increased bundling of many mortgages and other consumer debt instruments into bonds, which were then bundled into further collateralized debt obligations, against which in turn credit default swaps and other derivative instruments, hedged and rehedged manyfold, were written. In effect, there was a pyramiding of instruments, and, as the crisis of 2008 showed, the makings of a possible collapse if the foundational mortgages failed.³⁸ Trading in swaps was conducted in over-the-counter markets overseen only by anonymous industry committees because, according to one veteran financial reporter, "Wall Street likes the fog of over-the-counter markets because the profits ... executing customers' trades in them are far greater than in more transparent markets."³⁹ After a hiatus caused by the financial crash of 1929 and subsequent regulatory restraints, investment banks resumed actively trading for their own account in new stock and bond issues they were bringing to market, among other things taking advantage of the superior information they derived from serving as market facilitators.⁴⁰ This "insider information" also had external value. Between 2009 and June 2012, employees of 63 major banks were convicted for illegally transmitting private information on bank client events to unaffiliated stock market traders.⁴¹ The investment banks also began actively owning metals, electrical power allocations, and ethanol credits and trading in them for their own account.⁴²

These expanded activities were called "innovations" by their banking industry advocates. Innovation is usually considered virtuous, and some banking innovations have significantly enhanced consumer convenience. But on some other financial sector innovations, doubts intrude. As Ben Bernanke,

³⁸ For a chart showing the evolution over time of severe failure for mortgage-backed bonds issued in 2006, see Floyd Norris, "Citigroup's \$7 Billion Settlement Over Bad Mortgages, Pro and Con," *New York Times*, July 18, 2014, p. B7.

³⁹ Gretchen Morgenson, "Trying to Pierce a Wall Street Fog," *New York Times*, July 21, 2013, p. 3 of the business section; and "Europe Opens Antitrust Cases Over Banks Dealing in Derivatives," *New York Times*, April 30, 2011, p. B1.

⁴⁰ See "Two Ways for Banks To Win," *New York Times*, Dec. 20, 2011, p. B1. Supposedly, banks' portfolio investment employees are separated from other functions such as securities issuance by a "Chinese wall," but doubts exist.

⁴¹ "Insider Trading: Who's Next?" *The Economist*, June 23, 2012, p. 74.

⁴² See "Wall St. Exploits Ethanol Credits, and Prices Spike," *New York Times*, Sept. 15, 2013, p. 1; and "Off Limits, But Blessed By the Fed," *New York Times*, Dec. 22, 2013, p. 1.

at the time chairman of the Federal Reserve Board, testified before the U.S. Financial Crisis Inquiry Commission in 2010, financial innovation "is not always a good thing," since some innovations are used primarily "to take unfair advantage rather than to create a more efficient market."⁴³ Lord Adair Turner, chair of Great Britain's financial regulatory agency, described much of what happens on Wall Street as "socially useless activity" and said further, "Financial innovation ... may in some ways and under some circumstances foster economic value creation, but that needs to be illustrated at the level of specific effects; it cannot be asserted a priori."⁴⁴ Christine Lagarde, managing director of the International Monetary Fund, observed in a 2014 speech that the financial sector "nearly collapsed because of excess" -- "excess ... in risk-taking, leverage, opacity, complexity, and [employee] compensation."⁴⁵

The operational and geographic interconnectedness of investment banks' activities also set the stage for outright collusion. Collusive activities have been alleged and fined by cartel authorities in several matters, the most prominent of which has been the fixing of Libor (London Interbank Offered Rate) values.⁴⁶ Each day at 11:00 a.m. London time, 16 large banks submit to a British Bankers Association committee their most recent borrowing interest rates for periods of from overnight to 12 months in ten different national currencies. These are immediately compiled and made public as Libor values, which in turn serve as a focal point for the interest rates set on trillions of dollars of new loans. Bank staff colluded to manipulate particular Libor rate submissions to benefit their current short-term credit market positions. As one bank's trader e-mailed another bank's representative who had agreed to cooperate in the scheme, "Dude. I owe you big time.... Come over one day after work and I'm opening a bottle of Bollinger."⁴⁷

⁴³ "Bernanke Says He Failed To See Financial Flaws," *New York Times*, Sept. 3, 2010, p. B1. See also the testimony of previous chairman Alan Greenspan: "Those of us who have looked to the self-interest of lending institutions to protect shareholders' equity, myself included, are in a state of shocked disbelief." "The End of Wall Street," *Bloomberg Business Week*, April 19, 2010, p. 38.

⁴⁴ John Cassidy, "What Good Is Wall Street?" *The New Yorker*, Nov. 29, 2010, p. 51.

⁴⁵ "Economic Inclusion and Financial Integrity," text presented at a conference in London, published on the International Monetary Fund web site, May 27, 2014.

⁴⁶ For an analytic history, see Tom Hosking, Paul Kattuman, and Andrew Harvey, "Signalling Manipulation in Libor," working paper, University of Cambridge (2013).

⁴⁷ "Something's Rotten in Banking -- and It's Not Just Barclays," *Bloomberg Business Week*,

Nor were the stakes as modest as the cost of a bottle of premium champagne. Another message read, "I'll pay you, you know, 50,000 dollars, 100,000 dollars ... whatever you want....I'm a man of my word."⁴⁸ Investigation of the suspected scheme by national competition authorities commenced in 2008, and in 2012, Barclays (U.K.) bank turned states' evidence in the hope of freeing itself from antitrust sanctions (although later four of its employees were charged in criminal proceedings). Banks with many national home bases were either convicted or agreed to large fines. In December 2013 the European Commission, one of only several competition policy enforcers pursuing the case, levied fines of \$2.3 billion.⁴⁹

In 2012 another major international conspiracy came to light. At exactly 4:00 p.m. banks report to the Reuters news service in London the exchange rates at which they have traded various international currencies in the prior 60 seconds. Those disclosures in turn are used as a basis for the next day's international currency exchange rates and as a guide for valuing loan securities. Reporting bank employees discussed their submissions in advance, calling themselves in electronic communications "the Cartel," "the Bandits' Club," and "One Team, One Dream."⁵⁰ Governmental agency prosecution of the activities was underway at the time this chapter was written.

In a series of still-unfolding legal actions, other allegations of collusion have been advanced in crude oil futures, aluminum futures prices, and decisions as to which financial institutions will be allowed to bid on new private equity acquisition deals.⁵¹

July 9, 2012, p. 8.

⁴⁸ "The Lessons of 'Captain Chaos,'" *Bloomberg Business Week*, December 24, 2012, p. 16.

⁴⁹ "Europe Sets Big Fines in Settling Libor Case," *New York Times*, Dec. 5, 2013, p. B1. See also "Lloyds Bank to Pay Over \$380 Million to Resolve Rate Manipulation Inquiries," *New York Times*, July 29, 2014, p. 1.

⁵⁰ See "Bank, Fix Thyself," *The Economist*, March 8, 2014, p. 79; "Collusion in the Chat Rooms," *Bloomberg Business Week*, January 6, 2014, p. 32; and "Fixed Rates," *The Economist*, August 23, 2014, p. 67 (anticipating fines of \$26 billion).

⁵¹ See "Fixing the Fix," *The Economist*, Feb. 8, 2014, p. 71; "U.S. Judge Allows 3 Aluminum Price-Fixing Lawsuits to go Forward," Reuters dispatch, March 10, 2014; "E-Mails Hint at Collusion Among the Largest Equity Firms," *New York Times*, Oct. 11, 2012, p. B1; and "US: Goldman, Bain Settle M&A Bid-Rigging Lawsuit," *Competition Policy International* webcast, June 13, 2014.

Large fines have been imposed for another quite different set of bank activities -- failure adequately to disclose to credit rating agencies and purchasers known risks in the mortgages they bundled into bonds and sold in the prelude to the 2008 crisis.⁵² Particularly strong criticism was levied against the prestigious Goldman Sachs investment banking house, which issued a large volume of mortgage-backed bonds bearing no more than boilerplate warnings, but in mid-2006 began purchasing credit default swaps insuring itself against the failure of the very bonds it was issuing.⁵³

Goldman Sachs, JP Morgan Chase, and other leading New York investment banks were also criticized but not fined for designing financial hedge instruments that allowed the government of Greece to conceal the magnitude of its debts -- debts that eventually led to a crisis and intervention by the European Common Market central bank.⁵⁴ And in 2014, it became known that four leading U.S. investment banks had earned fees of more than \$200 million advising other U.S. corporations in organizing at least 31 "inversion" mergers since 2011, that is, mergers with foreign-based companies that allowed the U.S. parents to relocate their formal locus of incorporation and hence avoid tens of billions of dollars of U.S. corporate income tax liability.⁵⁵

Innovations in home mortgage financing also led to complications when the housing price bubble burst and other shocks induced millions of homeowners to become delinquent and risk

⁵² For a tabulation of the \$64 billion in fines levied on four U.S. banks for mortgage-related infractions, see "Capital Punishment," *The Economist*, July 5, 2014, p. 58. On a subsequent \$16 billion escalation (involving Countrywide, acquired by Bank of America), see "Bank Offers U.S. Biggest Settlement in History," *New York Times*, August 7, 2014, p. 1; and "Settling for \$16 Billion, Bank Knows It Will Pay Much Less," *New York Times*, August 22, 2014, p. 1. On government tactics leading to a \$7 billion settlement (not included in the \$64 billion tabulation), see "From Benghazi to the Boardroom: The Road to the Citigroup Settlement," *New York Times*, July 14, 2014, p. B1.

⁵³ See "For Bankers, a Routine Deal Became an \$840 Million Mistake," *New York Times*, April 23, 2010, p. 1; and "Clients Worried About Goldman's Dueling Goals," *New York Times*, May 19, 2010, p. B1.

⁵⁴ "Wall St. Helped To Mask Debts Shaking Europe," *New York Times*, Feb. 14, 2010, p. 1; and Allan Sloan, "Shocked by Wall Street's Role in the Greek Debacle? You Shouldn't Be. That's How the Big Banks Grind Out the Profits," *Fortune*, March 22, 2010, p. 78.

⁵⁵ "Banks Cash In on Mergers Intended to Elude Taxes," *New York Times*, July 29, 2014, p. B1.

default. Many mortgages were issued by banks or brokers and sloughed off either to large banks for packaging into bonds or to Fannie Mae and Freddie Mac. But who actually held physical possession of the underlying documents? Who was responsible for enforcing payments? And who held legally enforceable title? Many of these responsibilities were delegated to specialized mortgage servicing companies, some of which were subsidiaries of large banks, and the actual registration of some 60 million mortgages was farmed out to a small Virginia firm, Mortgage Electronic Registration Company.⁵⁶ Both sets of entities were geographically remote from most of the mortgagees whose loans they administered. It was physically inconvenient or even impossible for the mortgage servicers to meet eyeball-to-eyeball and work out new and more affordable terms with mortgagees, and the servicers could maximize their fees by avoiding renegotiation and instead commencing eviction and foreclosure actions.⁵⁷ This incentive propagated negative externalities in home ownership markets, since abandoned houses fall into disrepair and bring down the already depressed value of nearby properties.⁵⁸ And when foreclosures were initiated, they often hit legal problems when proof of ownership could not be provided by the initiators.⁵⁹ Meanwhile the government, having provided massive financial aid (on which more later) to banks, initiated a Home Affordable Modification Program seeking with subsidies of \$75 billion to have troubled mortgages renegotiated and keep citizens in their homes. Pressure was brought to bear by the government on the original mortgage-issuing banks to compel renegotiation rather than foreclosure and to reimburse already dehousing families. Although the banks initially resisted, they eventually responded, but the ensuing history was strewn with delayed actions, errors, and homeowner misery.⁶⁰

⁵⁶ "Murky Middleman," *New York Times*, April 24, 2009, p. B1.

⁵⁷ "A Trip to the Woodshed for Biggest U.S. Mortgage Servicers," *New York Times*, July 11, 2009, p. B1; and "Late-Fee Profits May Trump Plan To Modify Loans," *New York Times*, July 30, 2011, p. 1. The first article observes that in 2005, before the housing bubble burst, there were 800,000 foreclosures. Some 3.5 million foreclosures were forecast for 2009.

⁵⁸ See John Campbell et al., "Forced Sales and Home Prices," National Bureau of Economic Research working paper 14866 (2009), who estimate that an average foreclosure reduces the price of houses within a radius of roughly 264 feet by approximately one percent. See also "Why Don't You Sell It To Us?" *Washington Post*, July 27, 2014, p. G1.

⁵⁹ "The Faulty-Foreclosure Crisis Could Last for Years," *Bloomberg Business Week*, Oct. 11, 2010, p. 43.

⁶⁰ See "Banks Resist Plans to Cut Mortgages," *New York Times*, April 14, 2010, p. B1; "The Great Debt Drag," *The Economist*, Sept. 18, 2010, p. 94; "U.S. Report Suggests Banks Made

One final noteworthy facet of conduct entails the banks' aggressive cultivation of political support, especially in Washington. In the 2008 U.S. election cycle, financial institutions contributed \$475 million to candidates -- 2.8 times the spending of the second most active contributing industry, health care.⁶¹

5. Performance

Any evaluation of performance must begin with the most important nexus: the role of the banking industry -- including in particular mortgage brokers, commercial and savings banks, and Wall Street investment bankers bundling mortgages into tiers of bonds -- in precipitating the worst United States recession since the 1930s. Millions of citizens joined the ranks of the unemployed, millions of families lost their homes, and many more millions saw a substantial portion of their wealth evaporate. To be sure, others bore complementary responsibility -- the legislators who encouraged more home ownership than the market could sustain; the regulators who refrained from impeding the bubble's formation or mandating other behavioral changes; the securities rating agencies that failed to detect or report the risks they were supposed to publicize when new mortgage-backed bonds were issued; and the home buyers who plunged in over their financial heads, hoping to profit from what proved to be a housing price bubble. But bankers played a key facilitating role, knowing, or failing to acknowledge, what was evident, that they were contributing crucially to the bubble.

A more conventional measure of industrial performance is profit. To accentuate the negative, does an industry's pricing yield profits that are in some sense supra-normal? Figure 4 provides a broad picture. Using statistics reported annually by the U.S. Council of Economic Advisers, it tracks financial corporation profits as a percentage of all U.S. corporations' profits over the interval 1960-2013.⁶² The data series includes

Even More Errors in Foreclosures," *New York Times*, April 29, 2014, p. B1; and "Treasury Secretary Unveils Small Steps To Augment Loan Modification Program," *New York Times*, June 27, 2014, p. B3.

⁶¹ Kevin Drum, "Capital City," *Mother Jones*, January/February 2010, pp. 38 and 42. On lobbying outlays by leading institutions, see "The Home Foreclosure Fiasco," *Business Week*, Feb. 23, 2009, p. 36; and "Deconstructing Dodd-Frank," *New York Times*, Dec. 12, 2012, p. F12.

⁶² *Economic Report of the President* (March 2013), p. 430. The 2014 report omitted the relevant data (and others).

all financial corporations, and not only those identified in Table 1 as performing core banking functions, whose assets amounted to 44 percent of the total assets covered by Table 1.⁶³ However, banking almost surely drove the visible major changes. During the placid 1960s and 1970s, financial corporations generated on average 14.3 percent of all corporate profits -- not inconsistent with a more broadly-defined finance and real estate sector's 14 percent share of gross domestic product. But during the 1980s the finance share soared, reaching a peak of 40 percent in 2002-03 before crashing with, or in anticipation of, the "great recession" beginning in 2008. Meanwhile, a more accurately estimated share of the finance and insurance sector in gross domestic product hovered near 8 percent. Thus, finance corporations' profit share vastly exceeded their GDP share. And even after recovery from the 2008 crash, it continued to exceed the finance sector's GDP share by a factor of more than three. Clearly, unsatisfactory performance was rewarded with extremely satisfactory profits.

A paradox appears, however, when one analyzes an alternative measure of profitability -- the percentage return on stockholders' equity. The principal comparable published data must come from *Fortune* magazine's long-standing annual compilations of data for the largest U.S. corporations. For the 11 to 16 corporations classified by *Fortune* as "commercial banks" -- the category that most closely approximates our Table 1 core banking emphasis -- the median after-tax return on stockholders' equity between peak profit share years 2000 and 2007 averaged 14.25 percent. This exceeded by only 6.3 percent the median 13.4 percent return for all 500 reported corporations. Over the years 1980-89, when financial corporations' aggregate profit share was consistently below 20 percent, the median returns for (a larger number of) financial corporations were only 4.0 percent less on average than the returns for all 500 industrial corporations covered by *Fortune*.⁶⁴ Thus, especially for the 21st century, there is a huge gap between financial corporations' absolute profit shares, measured in Figure 4 relative to the corporate universe, and average

⁶³ The all-industry series includes profits of the Federal Reserve Board, but these have been excluded from the Figure 3 financial corporation totals.

⁶⁴ The percentage difference over time between financial corporations and broader corporate benchmarks is barely statistically significant, with a t-ratio 1.89. A more extensive regression equation controlling for differences over time in the number of banks included and the all-corporation benchmarks yielded similar insights.

returns measured as a percent of stockholders' equity compared to broader industry benchmarks.

There are three plausible explanations. One might be that banking is intrinsically asset-intensive, which is undeniably true, and that disproportionately large assets require similarly large equity bases. This hypothesis short-changes the possibilities in banking of powerful leverage -- that is, supporting a large asset base with a relatively small equity base. But one might argue that the banks have been required by their regulators for prudential reasons to maintain a substantial equity cushion to guard against recurrent crises. To be sure, since the publication of international bank equity guidelines by national banking regulators meeting in Basel, Switzerland, in 1988, there has been systematic pressure on banks to maintain adequate equity/asset ratios. But this explanation is inconsistent with the widespread belief since the crisis of 2008 that banks' equity cushion has been insufficient and by an increase in equity ratios required under later Basel guidelines since then.

A second possible explanation is that the leading banks' assets and equity values have been inflated by intensive merger activity. Many of the largest bank mergers were made through exchanges of shares in the acquiring institutions' common stock shares for shares of target banks. The most intense large-bank merger activity occurred during periods when companies' stock market values were well in excess of accounting book equity values.⁶⁵ Given the way merger accounting is done, the premium paid in an acquisition would be added to the acquirer's asset accounts, e.g., through an increase in "good will," with an equivalent addition to stockholders' equity on the liabilities side of balance sheets.⁶⁶ The merger-induced increases in stockholders' equity, all else equal, act to reduce reported ratios of profits to stockholders' equity. Thus, profits-to-equity ratios could remain stable while profits rise.

A third possibility is that banking became more asset- and hence equity-intensive as a result of cumulating financial innovations that featured inter alia the proliferation of loan

⁶⁵ See Robin Greenwood and David Scharfstein, "The Growth of Finance," *Journal of Economic Perspectives*, vol. 27 (Spring 2013), pp. 11-12.

⁶⁶ See e.g. David Ravenscraft and F. M. Scherer, *Mergers, Sell-offs, and Economic Efficiency* (Brookings: 1987), pp. 78-82 and 229-238.

asset tiers -- e.g., from loans themselves to bonds bundling multiple loans, and from there to bonds bundling loan bundles, and from there to credit default swaps and other derivative hedges against primary fund-raising instruments.

Resolution among these alternative hypotheses cannot be achieved in the current state of knowledge. Additional quantitative research is needed. Until it is accomplished, a puzzle remains.

There is, however, still another perspective on the profit - performance question. U.S. banking institutions (especially the investment banks clustered around and characterized as "Wall Street") have in recent decades paid relatively high wages and also conferred upon their employees substantial bonuses. Bonuses are normally determined as the end of a fiscal year approaches. Under a common rule of thumb, leading banking institutions calculated their gross profits before tax and allocated half of that amount to bonuses.⁶⁷ There were deviations in the crisis years 2008-2010, but by 2013, the average bonus paid to a Wall Street employee in New York City was reported to be \$164,530.⁶⁸ To the extent that this practice is followed, what would otherwise be reported as profit is transformed into employee compensation, leading to a possibly substantial under-estimate of true profitability.

This leads us to question the reasonableness of the largest banks' employee compensation. There was a time, e.g. during the 1950s and 1960s, when banking employees were compensated no more generously than similarly qualified individuals in other industries. But this changed. Unusually clear light was shed upon the change by an ambitious study of Harvard College graduates' compensation.⁶⁹ Goldin and Katz tapped their university's comprehensive alumni records (kept accurate for fund-raising purposes), sending questionnaires to the members of three cohorts -- those receiving bachelor's degrees in 1980,

⁶⁷ See e.g. "The Big Financial Pay Pie," *Fortune*, December 7, 2009, p. 24; and "Parsimony, for Goldman," *New York Times*, July 21, 2010, p. B2.

⁶⁸ "Average Wall St. Bonus Increased by 15% in 2013," *New York Times*, March 13, 2014, p. B6. Even in crisis year 2008, 3,123 employees of eight leading U.S. banks received bonuses of at least \$1 million. "Bankers Reaped Lavish Bonuses During Bailouts," *New York Times*, July 31, 2009, p. A3.

⁶⁹ Claudia Goldin and Lawrence Katz, "Transitions: Career and Family Life Cycles of the Educational Elite," *American Economic Review*, May 2008, pp. 363-369.

1990, and 2000. Some 6,554 alumni responded. The responses included data on graduate degrees received after Harvard College, earnings in the year 2005, occupation, and time intervals spent without employment. These were linked inter alia to data on SAT scores and college grade point averages. When all of those control variables were included in multiple regression equations, the authors found that alumni employed in the financial industries received net 2005 earnings premia of 195 percent, or in other words, their compensation was nearly three times that of their otherwise-comparable peers. Since many controls for ability, even if not work effort, were included, these premia must almost surely be viewed as an approximation to economic rents. In other words, they were a kind of supra-normal profit, accruing not to company stockholders but to their employees.

The extraordinary rents conferred by large financial institutions had a profound impact on graduating students' career choices. Even though financial service organizations (more broadly defined than banking) employed slightly more than four percent of total U.S. civilian sector workers, they attracted 28 percent of Harvard College graduates in the peak year 2008 and 17 percent in post-crisis 2011.⁷⁰ Recognizing this, many have asked whether the superior attractiveness of financial employment was misallocating resources away from occupations of at least equal value to the broader social economy.⁷¹

The allocation of so much human capital to supplying financial services might be defended by stressing the importance of that sector, fueling economic growth by supplying needed finance to all other sectors. Here a personal note is in order. When the author graduated from the Harvard Business School in 1958, banks did not offer superior pay packages. Yet at that time, there was no visible indication that American business firms were having particular difficulty obtaining the finance they needed to sustain their viability and growth. Although the problem is far more complex, one must recognize that the share of U.S. gross domestic product contributed by fixed non-

⁷⁰ Report of the Harvard University Office of Career Services, Senior Survey, May 1, 2012. In peak year 2008, 44 percent of Harvard Business School MBA took jobs in finance. "Degree of Uncertainty," *Boston Globe Magazine*, March 29, 2009, p. 24.

⁷¹ See e.g. Benjamin Friedman, "Is Our Financial System Serving Us Well?" *Daedalus*, Fall 2010, p. 15.

residential investment -- largely business investment -- fell from an average of 14.1 percent between 1950 and 1970 to 11.1 percent between 1985 and 2005. The latter period spans years when finance sector profitability increased most dramatically. Similarly, productivity -- real output per labor hour input -- in the U.S. business sector rose at an average rate of 2.78 percent per year between 1950 and 1970, while it increased at 2.24 percent per year between 1985 and 2005. Those statistics do not support an inference that such indicia of economic growth were held back by the absence of later financial sector changes.

6. Public Policy

Banking in the United States has been the focus of extensive regulation and rule-making. Most banks obtain federal or state charters and are then subject to periodic oversight and audits by an alphabet soup of governmental supervisory agencies, including at the national level bank examiners deployed by the Comptroller of the Currency. On other aspects, a cyclical pattern is evident. The Glass-Steagall Act of 1933, passed in the depth of depression, required investment banks to operate separately from commercial banks.⁷² This constraint was gradually relaxed beginning in 1987 and removed entirely by the Gramm-Leach-Bliley Act of 1999. From 1927, federal law delegated to the states the determination of whether banks could establish geographically dispersed branches. By 1995, all but two states allowed cross-border branching. Beginning in 1933, "Regulation Q" limited the interest rates that could be paid on federally chartered bank deposits. Such caps were gradually eliminated between 1978 and 1986. The Federal Reserve Board has from its early days required nationally chartered banks to maintain reserves in the form of cash or deposits with the Fed (assets, on banks' books of account) sufficient to withstand depositor "runs." Beginning with an international accord reached at Basel, Switzerland, in 1988, the Federal Reserve (like central banks elsewhere) has published regulations requiring member banks to maintain stockholders' equity (a liability, in the accounting framework) sufficient as a percentage of outstanding loans to weather clustered (i.e., crisis-induced) loan defaults that could otherwise jeopardize their solvency. Periodic amendments became increasingly

⁷² For a skeptical view of its efficacy as a solution to the problems that led to the Great Crash, see Randall Kroszner and R.G. Ragan, "Is the Glass-Steagall Act Justified?" *American Economic Review*, Sept. 1994, pp. 810-832.

complex.⁷³

6.1 Crisis Interventions

The mortgage-linked "great recession" precipitated major changes in federal government intervention. As several large banks approached the brink of collapse in October 2008, the administration headed by President George W. Bush induced Congress to pass a Troubled Asset Relief Program (TARP) law that allocated to the U.S. Treasury \$700 billion for the purchase of mortgage-backed and other securities whose default could jeopardize banks' viability. A week later the Secretary of the Treasury called into his office the leaders of nine major banks considered "too big to fail" and in effect required them, despite the reluctance of some, to accept a total cash injection of \$126 billion, in exchange for which the government obtained non-voting stock ownership rights.⁷⁴ One sequitur was that the large banks were induced to merge with more deeply troubled brethren. The program was then extended to encompass hundreds of smaller banks through federal government purchases of default-prone bonds and stock equity positions. In total, transfers of \$245 billion were made to stabilize banks; \$68 billion (later augmented with loans to \$182 billion) to "bail out" the American International Group, an insurance company that had plunged particularly deeply into selling (mostly to banks) credit default swaps against risky mortgage bonds; \$17 billion to General Motors Acceptance Corporation, the automobile loan branch of General Motors (later spun off as Ally Financial); and \$65 billion to GM itself and its Chrysler compatriot, also hovering on the brink of failure. The cash-for-stock transfers had been repaid in full (except for Ally) by 2014; the auto company transfers incompletely. As noted earlier, Fannie Mae and Freddie Mac were also formally nationalized, transferring huge losses on mortgage-backed bonds to the federal government.

With less publicity but on an even grander scale, the Federal Reserve banks loaned hundreds of billion dollars outright to major banks and compensated for banks' reluctance to extend mortgage credit by purchasing for its own portfolio vast quantities of mortgage-backed bonds as a part of its "quantitative easing" program. As the Fed's program began to wind down, the Fed's balance sheet recorded (in April 2014) \$1.6

⁷³ See "Basel III's Bedeviling Complexity," *Bloomberg Business Week*, Nov. 19, 2012, p. 12.

⁷⁴ See e.g. Johnson and Kwak (2010), Chapter 6.

trillion of mortgage-backed securities along with \$2.35 trillion of U.S. Treasury bonds. This massive intervention was designed both to help banks avoid failure and to combat a deep recession by driving interest rates down to unprecedented levels -- e.g., averaging 0.13 percent per annum on six-month Treasury notes in 2012. A principal goal of the quantitative easing program was to stimulate more borrowing and investment by private sector enterprises, offsetting those firms' reluctance to invest because of the bleak economic outlook. Despite the investment inhibitions characterized as a "liquidity trap" dilemma by disciples of John Maynard Keynes, the program almost surely did help restore economic growth to the U.S. economy.⁷⁵ Concern has subsequently arisen that the low interest rates could contribute to a bubble in other securities markets, with unfortunate consequences anticipated when the Federal Reserve ends its quantitative easing.

6.2. Re-regulation.

The crisis of 2008 revealed that the laws, regulations, actions of federal banking oversight authorities, and the failure of responsible agencies to apply existing mandates, left much to be desired. After a systematic investigation,⁷⁶ the U.S. Congress struggled mightily to craft a new comprehensive regulatory scheme. The resulting Dodd-Frank Wall Street Reform and Consumer Protection Act, passed in July 2010,⁷⁷ included in its 842 pages numerous important changes:

(1) It created a multi-agency oversight panel within the Federal Reserve system, the Financial Stability Oversight Council, to monitor the banking system's status and take corrective action before systemic risks evolve into crises.

(2) After rejection of proposals to revert to Glass-Steagall Act presumptions and segregate banks' investment banking from commercial banking functions or otherwise limit the size of the largest banks, it limits the extent

⁷⁵ See J. M. Keynes, *The General Theory of Employment Interest and Money* (Macmillan: 1936), especially p. 207. The term "liquidity trap" was coined by Keynes' interpreters.

⁷⁶ *Final Report of the National Commission on the Causes of the Financial and Economic Crisis in the United States* (Public Affairs Press: 2011).

⁷⁷ For a fourth anniversary evaluation of how enforcement of the law had evolved, see the hearings of the House of Representatives Financial Services Committee (with testimony inter alia from co-author Barney Frank) held on July 23, 2014.

to which banks orchestrating new securities issues can trade those securities for their own account. Recognizing that to "make" a new securities issue market requires some purchases and sales by financial intermediaries, this so-called "Volcker rule" (named after its champion, former Federal Reserve Board chairman Paul Volcker) mandated the issuance of detailed rules distinguishing between permitted trading and essentially speculative (i.e., "proprietary") trading that among other things could take advantage of insider information. The subsequent document clarifying those rules encompassed nearly 963 pages.

(3) It required financial institutions with assets exceeding (with some exceptions) \$50 billion, deemed "systemically important," to prepare "living wills" identifying how those institutions could be reorganized, among other things naming likely merger partners in the event of impending failure and requiring increases in their stockholders' equity positions against possible adverse events. "As a last resort" divestiture of some assets can be required.

(4) It requires companies selling risky mortgage-backed securities to retain at least 5 percent of their value as "skin in the game," bolstering their incentives to ensure credit-worthiness.

(5) It created a new agency, the Consumer Financial Protection Bureau, to ensure that the practices of credit-issuing entities (including mortgage brokers and payday lenders) are consistent with the interests of ordinary consumers. Among other things, the new agency was charged with requiring loan provisions to be disclosed in plain readable language, making credit rating scores available to affected consumers, opposing the imposition of unjustified fees and loan prepayment penalties, regulating debt collection practices, articulating customer privacy rules, and serving as an intervenor (with a hotline) to whom aggrieved consumers can turn with complaints.

(6) The Dodd-Frank law requires that derivative instruments such as credit default swaps be cleared on central exchanges rather than privately, as was the custom, so that information on their existence and terms is disclosed, and that clearing houses enforce capital and

margin mandates to ensure that obligations are fulfilled. A loophole was created for derivatives traded outside the United States, which is expected to drive such trading overseas.⁷⁸

(7) It establishes a federal office to oversee the work of credit rating agencies and reduce the ability of debt issuers to shop for the rating agency expected to confer the most favorable ratings.

(8) It allows corporate shareholders to have non-binding votes on executive pay decisions and golden parachutes.

At the time this chapter was written, detailed implementation of the law's provisions was still underway, among other things through an extensive program of rule-making by the designated enforcement agencies. Full consequences will be ascertainable only in the future.

6.3 Bank Mergers and Antitrust

Paralleling diverse state and federal agencies' regulation of banking activities has been the application of more general antitrust laws seeking to prevent mergers that significantly limit competition. The original enabling law was the Celler-Kefauver Act of 1950 (amending Section 7 of the 1914 Clayton Antitrust Act), passed by the U.S. Congress in what was seen as a rising merger wave in the wake of World War II. It was unclear initially whether the Celler-Kefauver Act applied also to bank mergers, but clarification came with additional Bank Merger Acts in 1960 and 1966.⁷⁹

Clear standards emerged through Supreme Court interpretations. In 1961 the Justice Department's Antitrust Division brought five complaints against banking mergers, the first and most important of which was the so-called Philadelphia

⁷⁸ See "Another Failure to Regulate Derivatives," editorial, *New York Times*, July 3, 2014, p. A20.

⁷⁹ 74 Stat. 129 (1960) and 12 U.S.C. 1828(c) (1976 edition). For comprehensive insights into early merger legislation and court interpretations, see Earl Kintner and Hugh Hansen, "A Review of the Law of Bank Mergers," *Boston College Industrial and Commercial Law Review*, vol. 14 (December 1972), pp. 213-265.

Bank case.⁸⁰ The Treasury Department's Comptroller of the Currency had approved the merger of Philadelphia National Bank (now called "PNB") with Girard Trust, arguing that a larger bank (with some 36 percent of Philadelphia metropolitan area bank deposits) would by virtue of its size be better able to compete with New York banks in providing capital to sizeable Philadelphia enterprises. The Supreme Court rejected this view, articulating several key precedents. First, it dispelled the jurisdictional confusion in existing statutes, making it clear that the Justice Department could in fact move to enjoin banking mergers under the Celler-Kefauver Act. Second, it defined the relevant product market as "the cluster of products (various kinds of credit) and services (such as checking accounts and trust administration) denoted by the term 'commercial banking.'" Third, observing that for all but large depositors and borrowers, convenience and high transportation costs led most bank customers to confer their patronage on local community banks, it defined the relevant geographic market as a four-county area enveloping Philadelphia. It stressed too that "small businessmen especially are ... confined to their locality for the satisfaction of their credit needs." Fourth, it rejected defense testimony that competition among banks was and would continue to be vigorous. Fifth, it emphasized the combined banks' market share of roughly 36 percent and observed that after merger the four largest Philadelphia area banks would command 58 percent of deposits and net loans. Finally, it rejected the argument that merger would make the two banks more effective as competitors, observing that they had alternative ways to expand their local impact and stimulate economic development, concluding with the dictum that:⁸¹

[A] merger the effect of which "may be substantially to lessen competition" is not saved because, on some ultimate reckoning of social or economic debits and credits, it may be deemed beneficial. A value choice of such magnitude is beyond the ordinary limits of judicial competence, and in any event has been made for us already, by Congress when it enacted the amended Section 7. Congress determined to preserve our traditionally competitive economy. It therefore proscribed anticompetitive mergers, the benign and the malignant alike, fully aware, we must assume, that some price might

⁸⁰ U.S. v. Philadelphia National Bank, 374 U.S. 321 (1963).

⁸¹ 374 U.S. 321, 371 (1963).

have to be paid.

One might object in hindsight that later, during the 1970s, rich new opportunities for consumers to invest funds of \$10,000 or more at interest began to open up with the advent of bank certificates of deposit and money market funds. But this potential loophole was essentially closed by additional Supreme Court decisions over the next seven years.⁸² In particular, in its Phillipsburg decision, the Court focused on the key role that banks play in providing loans to local small businesses:⁸³

[I]f anything, it is even more true in the small town than in the large city that "if the businessman is denied credit because his banking alternatives have been eliminated by mergers, the whole edifice of an entrepreneurial system is threatened."

This view reflects a broader historical tradition in the United States seeing the yeoman small business owner as particularly worthy of sustenance, not only under antitrust but also under programs such as small business set-asides in defense procurement and special loan programs for small businesses.

Supreme Court interpretations following Philadelphia Bank also clarified what burden of proof needed to be sustained by would-be merger partners who argued that the concentration-increasing effects of their merger were more than offset by greater loan-issuing scale, risk-reducing diversification, or other merger benefits. In its Third National Bank decision, the Supreme Court said that to sustain such a defense, the parties needed to prove that they had made a reasonable effort to achieve the benefits they predicted from the merger by feasible means short of merger.⁸⁴

Supreme Court pronouncements between 1963 and 1970 established such strong precedents that blocking many mergers became the moral equivalent of kicking extra points in professional football: the antitrusters nearly always succeeded. The laws made it clear too that the favorable bias

⁸² Specifically, U.S. v. First National City Bank of Houston et al., 386 U.S. 361 (1967); U.S. v. Third National Bank in Nashville et al., 390 U.S. 171 (1968); and U.S. v. Phillipsburg National Bank and Trust Company et al., 399 U.S. 350 (1970).

⁸³ 399 U.S. 350, 358.

⁸⁴ 390 U.S. 171, 190 (1968).

toward mergers traditionally exercised by bank regulators -- e.g., the Comptroller of the Currency, the Federal Deposit Insurance Corporation, and the Federal Reserve Board -- could readily be overcome by antitrusters if a merger had significant concentration-increasing effects. Therefore, the various agencies began working together to gather and analyze the data needed to reach merger judgments. In March 1995, joint Bank Merger Screening Guidelines were adopted by the Department of Justice, the Comptroller, and the Federal Reserve to guide banks as to what documentation would be required and what processes they could anticipate.⁸⁵

The precedents evolved through Supreme Court interpretations were so strong, and the threat of deal-breaking delays through temporary injunctions if litigation began was so credible, that would-be merger makers regularly brought their plans before the regulatory authorities in advance and negotiated voluntary settlements without requiring the federal (or state) antitrust authorities to file a formal complaint. According to a 2008 analysis by a Department of Justice economist immersed in the merger screening process:⁸⁶

The U.S. Department of Justice ... reviews roughly 600 bank mergers per year, of which it 'challenges' roughly one, although these 'challenges' do not entail the filing of complaints in district court. In fact, the DoJ has not filed a complaint against a bank merger since 1993. Rather, approximately once per year the DoJ issues a press release announcing that competitive concerns with a bank merger have been resolved through the divestiture of branches along with associated deposits and outstanding loans.

A tally covering parts of the years 1996 through 1999 released jointly by the Department of Justice and the Federal Trade Commission reveals that the "once per year" assertion

⁸⁵ See "Bank Merger Competitive Review -- Introduction and Overview (1995)," dated "current as of 9/2000)," downloaded from www.justice.gov/atr/public/guidelines/6472.htm; and Constance Robinson, "Bank Mergers and Antitrust," speech text, May 30, 1996, www.justice.gov/atr/public/speeches/1003.htm.

⁸⁶ Gregory J. Werden, "Perceptions of the Future of Bank Merger Antitrust: Local Areas Will Remain Relevant Markets," Fordham Journal of Corporate & Financial Law, vol. 13 (2008), p. 582.

underestimates the volume of informal merger challenges.⁸⁷ A broader tabulation shows that actions were taken in 19 bank merger cases over the span of three and one-third years. In only one case was a bank merger stopped completely.⁸⁸ All others ended with the divestiture of one or more branches, totalling 524, other components of the proposed merger proceeding to consummation.

This active antitrust record, supported by strong judicial precedents, helps explain why in an earlier text table commercial banking concentration ratios are seen to fall on average in metropolitan and rural markets between 1990 and 2006. A paradox remains, however. Figures 2 and 3 reveal a massive merger wave in the 1990s, continuing into the 21st century. Why did the wave persist despite antitrust inhibitions? And Table 2 shows that many of the lines in which the largest investment banks excelled were highly concentrated. Why were there so few if any anti-merger actions against those concentrations?⁸⁹ The most likely hypothesis is that the antitrust agencies drew their thunder from the local commercial banking market focus of Philadelphia Bank and subsequent Supreme Court decisions, which provided at best a minimal fulcrum for challenging mergers in other financial product markets. Support for this inference comes inter alia from the fact that the bank merger screening guidelines and worksheets issued by the Department of Justice in 1995 focus almost exclusively on local geographic markets. That statistical data on the structure of more specialized investment banking functions are lacking, at least on any known public basis, so that enforcers may not have perceived the concentration-increasing tendency of major mergers, could have contributed to their neglect. Whatever the explanation, antitrust enforcers appear to have allowed an elephant to escape into the countryside even while they were doing good work to curb loan and deposit provision concentration increases in local

⁸⁷ Merger Challenges Data, Fiscal Years 1999-2003 (December 18, 2003), www.justice.gov/atr/public/201898.htm. An appendix provides more detailed qualitative information on mergers treated between 1996 and 1999.

⁸⁸ First Bank of Grants / Grants State Bank (May 1997). The merger involved two small banks in Arizona.

⁸⁹ The principal two exceptions between 1985 and 2010 to antitrust-based prohibitions of purely local bank mergers occurred in two credit card merger cases -- Visa U.S.A. and Master Card International, CCH Trade Cases Para. 69,016 (1990) (an action brought solely by state attorneys general), and First Data Corporation and Concord EFS, CCH Trade Cases Para. 74,481 (2004) (brought jointly by the Department of Justice and state attorneys general).

markets.

7. Conclusion

The banking industry provides vital intermediation functions in modern economies. It encompasses many specialized activities, from providing and clearing checkbook transactions to extending consumer and business firm loans to facilitating a host of specialized national and international financial activities. It has experienced in recent decades a massive wave of mergers, only partially constrained by antitrust actions. A handful of giant banking firms have come to tower over the rest of the industry. Its performance, especially as a prime mover supporting the housing price bubble whose burst precipitated a major recession in 2008, leaves much to be desired. Its compensation practices have increased the inequality of income and wealth distribution. The Dodd-Frank law of 2010 seeks to channel banks' activities in more transparent and safer directions. How successful the new law will be remains to be ascertained.

Suggestions for Further Reading

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Table 1

Assets in 2010 of Financial Institutions Covered by
U. S. Flow-of-Funds Accounts*

| | Assets (\$ billions) |
|---------------------------------------|-------------------------|
| Core banking functions: | |
| Commercial banking | 14,402 |
| Savings institutions | 1,244 |
| Credit unions | 911 |
| Finance companies | 1,595 |
| Money market mutual funds | <u>2,755</u> |
| Total | 20,907 |
| Preponderantly non-bank functions: | |
| Life insurance companies | 5,177 |
| Property/casualty insurance companies | 1,403 |
| Private pension funds | 6,080 |
| Mutual funds | 7,963 |
| Closed end funds | 246 |
| Exchange-traded funds | 986 |
| Asset-backed securities issuers | 2,454 |
| Real estate investment trusts | 274 |
| Security brokers and dealers | <u>2,075</u> |
| Subtotal | 26,658 |
| Grand Total | 47,565 |

*Source: Statistical Abstract of the United States: 2012,
p. 731.

Table 2*

Share of Various U.S. Banking Activities Held by the Six
Largest Banks (with Assets of \$500 Billion or More)

| | Estimated Share (Percent) |
|---|------------------------------|
| Small business loans | 17 |
| Branch activity | 20 |
| Automatic teller machine transactions | 25 |
| Commercial real estate | 26 |
| Retail deposits | 37 |
| Custody account volume | 38 |
| Internet banking | 50 |
| Credit and inventory loans | 52 |
| Consumer loans and financing | 56 |
| Cash management facilities | 59 |
| Home equity loans and credit lines | 60 |
| Origination of automatic inter-bank clearings | 60 |
| Debit card activity | 63 |
| Other clearing and federal wire transactions | 66 |
| 1-4 residential mortgages | 76 |
| Credit card activity | 76 |
| Syndicated loans | 86 |
| International lending | 88 |
| Debt market flotation | 94 |
| Equity capital market flotation | 100 |
| Merger and acquisition support | 100 |
| Trading of ordinary securities | 100 |

*Source: The Clearing House, Understanding the Economics of Large Banks: Appendix (New York: 2011), pp. 11-12.

14,273 words

Figure 1
Top Ten U.S. Banks' Share of Core Banking Assets

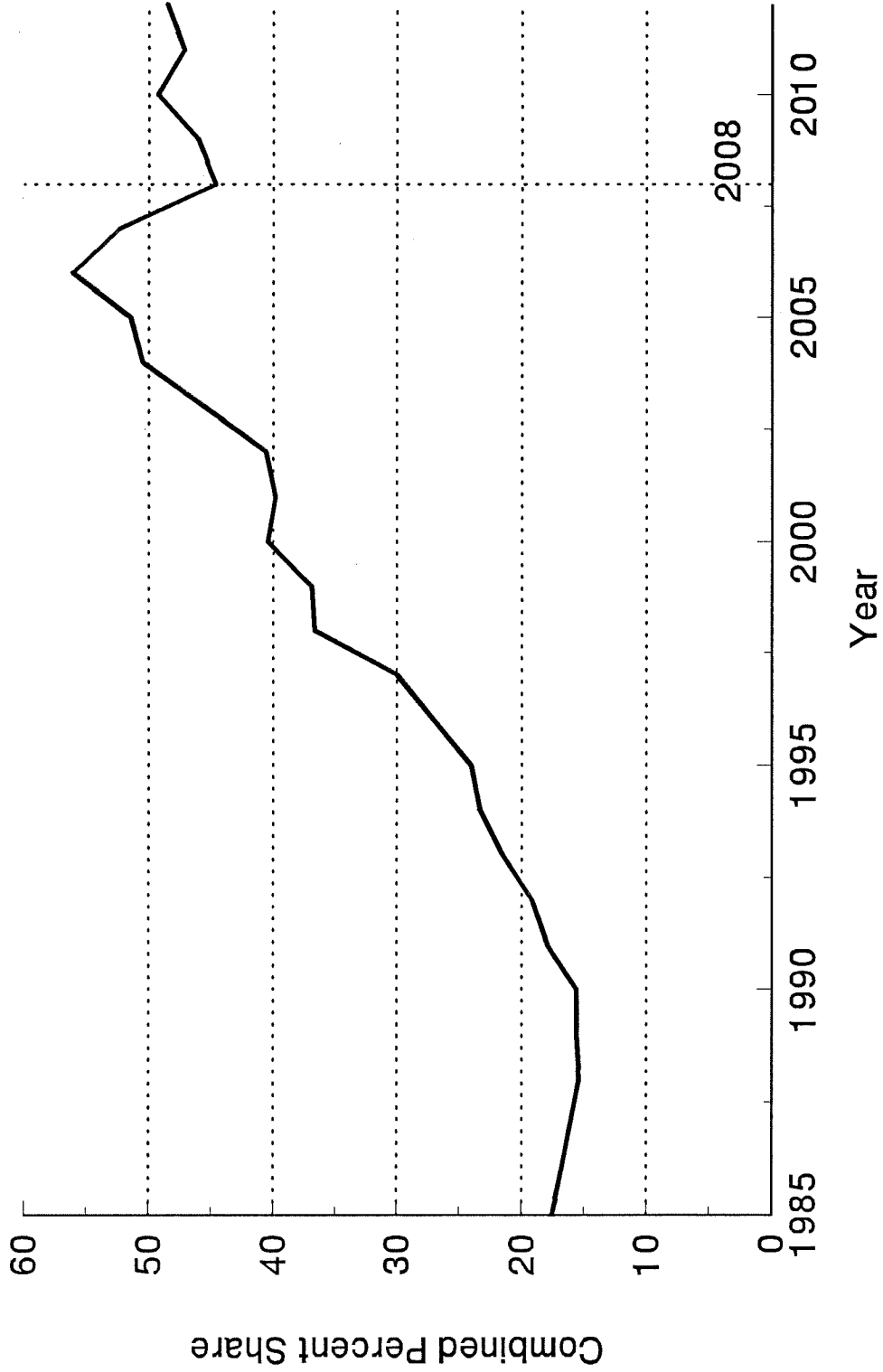


Figure 2
Bank Disappearances Due to Mergers
Insured U.S. Commercial Banks and Trust Companies

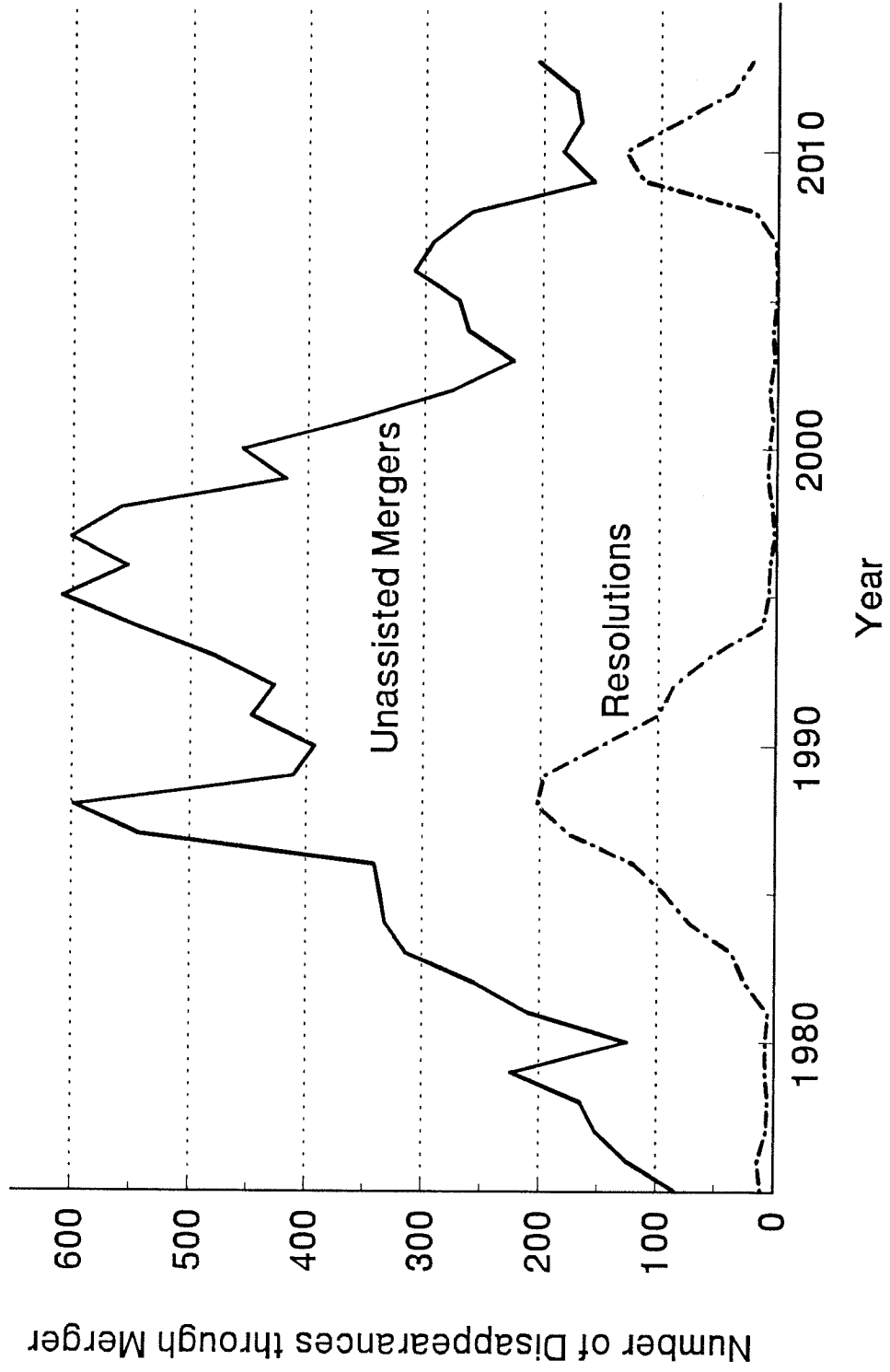


Figure 3

History of Mergers for the Six Leading Banking Firms of 2009: 1985-2008

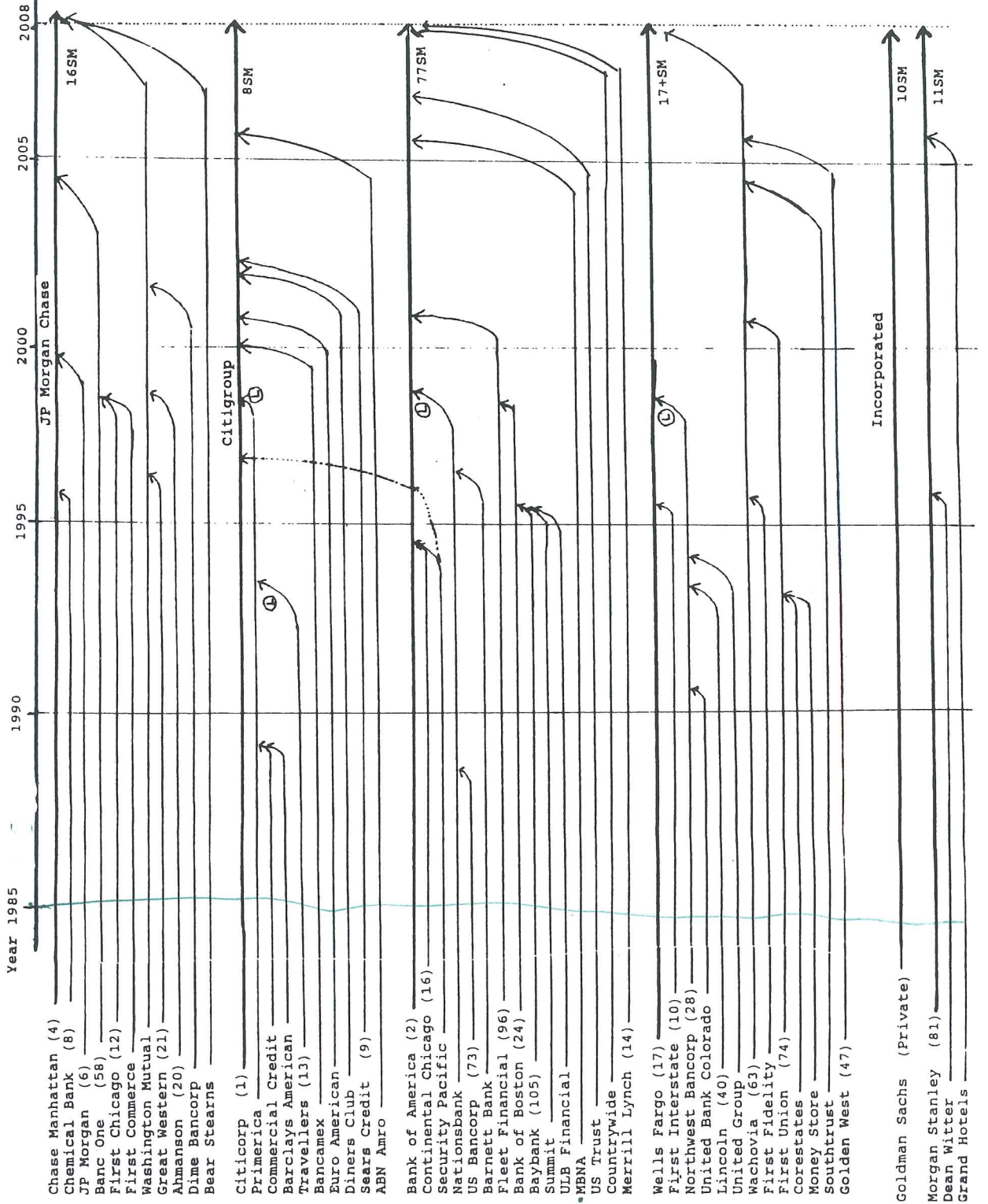


Figure 4
Financial Corporation Profits as a Percent of All U.S. Corporate Profits

