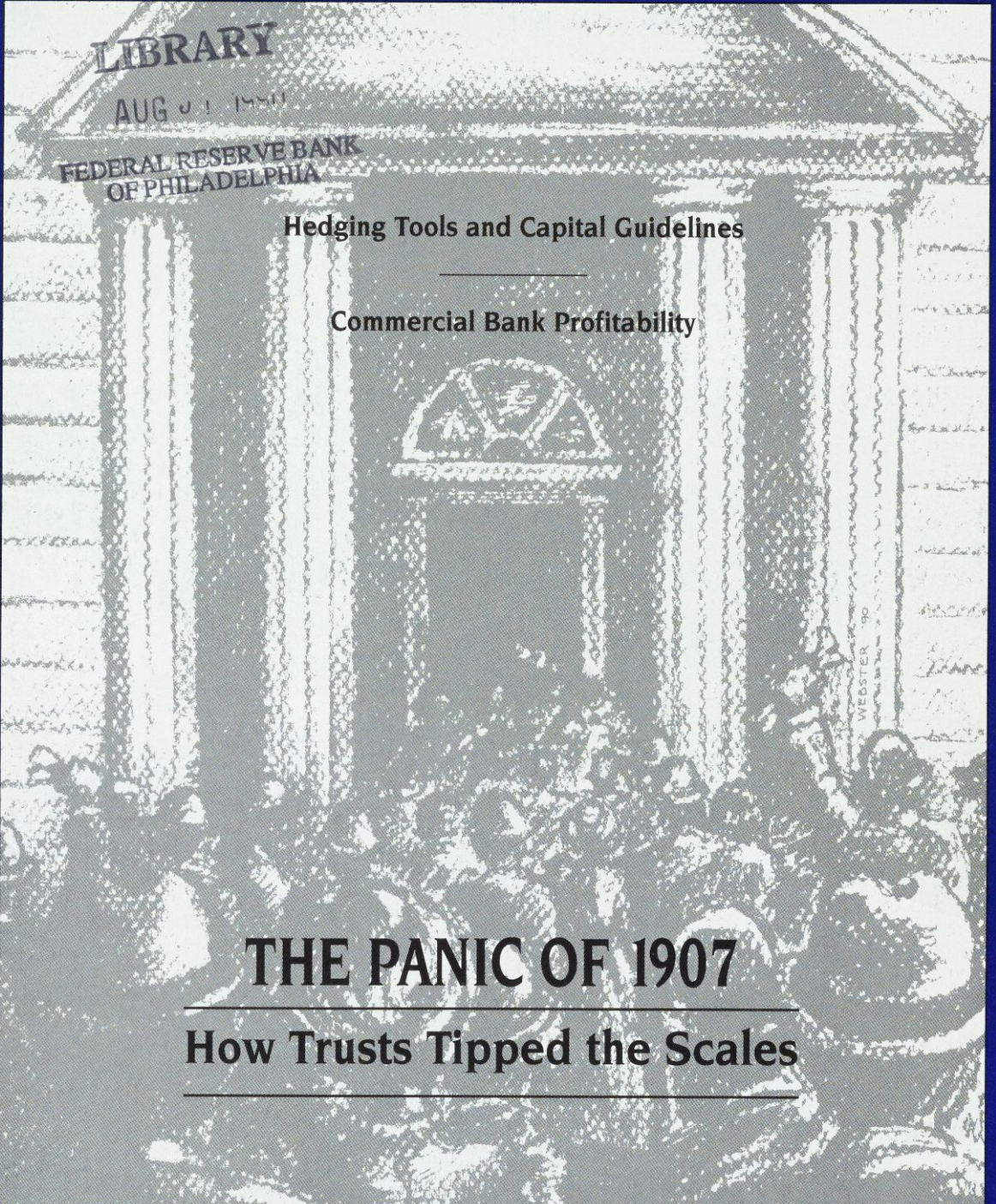


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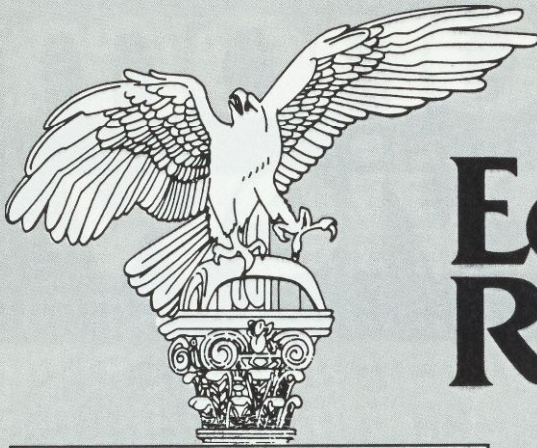


Hedging Tools and Capital Guidelines

Commercial Bank Profitability

THE PANIC OF 1907

How Trusts Tipped the Scales



Economic Review

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Lessons from the Panic of 1907

Ellis W. Tallman and Jon R. Moen

The Bank Panic of 1907 was so serious that it became a catalyst for the creation of America's central bank. This study, which examines the circumstances leading to and the intervention measures taken during the panic, particularly focuses on trust companies' function as a financial intermediary. Unequal regulation among financial organizations, the authors find, led to a concentration of riskier assets in less regulated intermediaries, primarily trusts. Trusts' riskier asset portfolios made them the focal point from which the crisis spread to other segments of the financial market. Allowing various types of institutions comparable access to all assets and investment opportunities, the authors conclude, might reduce the risk that the collapse of one type of asset would threaten the solvency of an entire class of financial intermediary.



For the past two centuries recurrent crises have shaken the banking system and financial markets in the United States. One severe crisis, the Bank Panic of 1907, disrupted financial markets to such an extent that it became an important catalyst for creating the Federal Reserve and the U.S. banking system as it operates today. The panic involved several types of financial intermediaries, each distinct and playing a unique role in capital markets at the same time that each operated under a different set of regulations. This regulatory framework created conditions that made a panic more likely than if regulation had allowed uniform access to all investment opportunities.

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What follows is a case study of an individual financial crisis, a record detailing events that led up to, and the maneuvers that took place during, the Panic of 1907. The focus is on the condition of New York City trust companies, a financial intermediary that had grown rapidly in prominence at the turn of the century and experienced the most severe depositor runs during the Bank Panic of 1907. Their growth can be attributed largely to freer investment opportunities that resulted from being less subject to regulation than state or national banks. Although trust companies were profitable, their specialization in collateralized loans, perceived as risky loans to firms that could not obtain credit through national or state banks, added to the severity of the panic.

This research has direct relevance for the regulation of intermediaries. Examining the role of the trust company as a financial inter-

mediary in the Panic of 1907 helps to expose the crucial role that uneven regulation played in determining the composition of asset portfolios of banks and trusts. Because trusts took advantage of investment opportunities to which banks had limited access, trusts had relatively undiversified portfolios.

Economic Conditions before the Panic

How does a financial crisis begin? What prompts a panic? Most answers suggest that financial calamities result from an unusual combination of economic conditions and events. In the case of the 1907 Panic the collapse of F. Augustus Heinze's attempt to corner the market for copper stock apparently triggered the chain of events, but informed observers agree that the same developments probably would not have led to a panic in a more benign economic environment.¹ Oliver M.W. Sprague, writing for the National Monetary Commission in 1910, describes in detail the economic conditions and special circumstances that resulted in the Panic of 1907. Unusually severe liquidity problems in New York City emerge as a backdrop in the crisis.

Seasonal Liquidity Fluctuations. During the National Banking Era the New York money market faced seasonal variations in interest rates and liquidity resulting from the transportation of crops from the interior of the United States to New York and then to Europe. The outflow of capital necessary to finance crop shipments from the Midwest to the East Coast in September or October usually left New York City money markets squeezed for cash. As a result, interest rates in New York City were prone to spike upward in autumn. Seasonal increases in economic activity were not matched by an increase in the money supply because existing financial structures tended to make the money supply "inelastic." The base money stock—gold, greenbacks, national bank notes, and gold and silver certificates—was also affected by unusual variations in gold flows through foreign exchange markets. Recent research by Fabio Canova offers evidence that external

disruptions to the movement of gold were important determinants of bank panics.² Atypical gold flows in 1907 seem to have contributed to the extreme seasonal tightness in New York City's money markets in the fall.

The absence of finance bills during 1907 substantially altered gold flows, contributing to the conditions that framed the crisis. Finance bills were contracts to extend credit—essentially bonds issued to borrow overseas in hope of profit from anticipated exchange-rate fluctuations. The dollar's exchange rate varied over the year, strengthening during the harvest season when foreign demand for dollars to purchase crops was high and weakening thereafter. Finance bills were most frequently drawn in the summer, two or three months before crop movement, when the dollar price of sterling was quite high (E.W. Kemmerer 1910). Banks and trust companies then sold sterling notes for dollars when sterling was stronger and repaid the notes when the dollar value of sterling was lower, thus making a profit. Increased use of finance bills seems to have reduced the volatility of exchange rates and the volume of gold shipments overseas, enhancing the efficiency of the international exchange market, according to C.A.E. Goodhart and Margaret Myers. Finance bills also provided a crude futures or forward market in foreign exchange.

International Gold Flows. Unlike the foreign exchange market, domestic trade offered no such contractual provision to smooth capital flows. The New York money market transferred funds to the interior of the United States to finance transport of agricultural goods to New York City ports. Without a mechanism to arbitrage regional interest rates or increase liquidity, interest rates in New York City generally climbed during the fall. This regular pattern signaled the increased liquidity needs of New York City banks. Usually, higher interest rates attracted sufficient funds to offset the city's money shortage. In 1907, however, aberrations in international gold flows created additional credit constraints in the financial market that heightened the probability of a panic.

In the spring of 1906 the U.S. Treasury Department, under Secretary Leslie Shaw, devised policies to stimulate gold imports into

the United States to combat what was perceived to be a shortage of gold. Subsidizing gold imports through the use of finance bills, the policy generated a significant inflow of \$50 million in a little more than a month, between April and May 1906. In typical trade, finance bills issued during the summer would have prevented such substantial gold outflows from England. As it was, large-scale exports of gold from London nearly spurred a crisis in Great Britain. To defend its domestic financial markets, the Bank of England raised its discount rate in late 1906 and threatened another increase if American finance bills were not paid upon maturity without renewal (Myers).

Thus finance bills were suspended during 1907, substantially constricting the system of arbitrage that minimized actual shipments of gold. In 1907, despite relatively high U.S. interest rates, the United States exported \$30 million in gold to London during the summer. As a result, the New York money market was left with an uncharacteristically low volume of gold upon entering the fall season of cash tightness.³ New York financial markets were thus pressed by even less liquidity than usual at precisely the time when the need for money intensified. Any shock to the financial markets could, and in 1907 did, spark a major crisis.

The Onset of the Panic

Such a shock occurred on October 16, 1907, when F. Augustus Heinze's attempt to corner the stock of United Copper Company failed. Although United Copper was only modestly significant, the collapse of Heinze's scheme, which came atop a slowing economy, a declining stock market, and a tight money market, sparked one of the most severe bank panics of the National Banking Era. Investigation of Heinze's interests exposed an intricate network of interlocking directorates across banks, brokerage houses, and trust companies in New York City. Contemporary observers like Sprague believed that the close associations between bankers and brokers heightened depositors' anxiety.

As Heinze's extensive involvement in banking became apparent, along with that of another speculator associated with the copper scam, C.F. Morse, depositors' fears of insolvency precipitated a series of runs on the banks where the two men held prominent positions. After the failure of his attempt to corner United Copper stock, Heinze was forced to resign from the presidency of Mercantile National, and worried depositors began a run on the bank. The New York Clearinghouse, a consortium of banks in New York City, examined the bank's assets, announced that it was solvent, and stated that the clearinghouse would support Mercantile on the condition that Heinze and his board of directors resign.

During the reorganization of Mercantile National Bank, the New York Clearinghouse began examining other banks that had interests related to Heinze and that had been raising suspicion for some time. The restructuring of Mercantile revealed that Morse was one of that bank's directors. Sprague (1910, 248) describes Morse as having "an extreme character, even when judged by American speculative standards."

Morse was a director of seven New York City banks, three of which he controlled completely. He was also held in low esteem by most other bankers. His connection with Mercantile's difficulties worried depositors at his other banks, and two called for aid from the clearinghouse on October 19 in response to large withdrawals of deposits. The clearinghouse granted assistance on the condition that Morse retire completely from banking in New York. During the weekend, both Morse and E.R. Thomas, another of Heinze's cohorts, were relieved of their remaining banking interests. The clearinghouse promised to support those banks as well.

The assets of Heinze's banks totaled \$71 million, compared to over \$2 billion in all New York City banks and trusts (Sprague 1910, 249). Although this was a significant amount, depositors apparently considered the clearinghouse's promise of a \$10 million fund to aid former Heinze banks sufficient because no notable run occurred on the banks. On Monday, October 21, Mercantile National resumed business with new management, and the run ceased. Similar action was taken at

Heinze's Copper Corner Attempt

F. Augustus Heinze, a key player in the initial stage of the panic, rose rapidly to notoriety in the financial world after he won a highly publicized legal battle against Amalgamated Copper in Butte, Montana. Amalgamated had been organized a few years earlier by several Standard Oil Company executives and financiers, including James Stillman of National City Bank of New York. The purchasers of Amalgamated reportedly earned a profit of \$36 million on an investment of \$39 million, which had gone primarily toward the acquisition of the Anaconda mines in Montana (*New York Times*, October 17, 1907).

Heinze, who owned a copper mine near the Amalgamated Mines, claimed that veins of copper from his mine extended under land owned by Amalgamated and that according to the "apex law" he had a right to mine it (Carosso 1970, 112). The matter was pursued in an extensive legal confrontation that was eventually settled out of court in February 1906, when Heinze sold his copper interest to Amalgamated for a reported \$25 million, half in cash and half in Amalgamated securities.

Heinze took his gains to New York City, where he became involved in banking (Allen 1935). In January 1907 newspaper articles had already associated Heinze with E.R. Thomas and C.F. Morse, both New York bankers and owners of the Mechanics and Traders State Bank and Consolidated Bank. Heinze was placed on the board of directors of eight banks and two trust companies.¹ Elected president of Mercantile National Bank in February 1907, he immediately replaced the directorship with his associates. The Heinze group gained control of several other banks quite quickly through "chain banking," an organizational strategy similar to today's bank holding company. The group would buy stock in a bank and use it as collateral to borrow money, which was then used to buy stock in another bank or trust.

Heinze's attempt to corner the stock of United Copper, a company of which he was president, eventually triggered the Panic of 1907. The corner attempt, which probably explains the steady and relatively high price of United Copper stock despite a weak copper market during 1907, was not an unusual strategy. However, unlike other market corner schemes, this one seemed to be public knowledge, as suggested by several newspaper articles referring to the intent of the Heinze group (see below). His reputation as a speculator was further reinforced when the respected investment

banking house J.S. Bache withdrew from its business relations with Heinze in February 1907 (*New York Times*, February 15, 1907).

The alleged corner of United Copper stock collapsed in October 1907. It was foiled in part by actions taken by an Amalgamated subsidiary, United Metals Selling Company, which apparently had been manipulating the market for raw copper. Subsequent Pujo Committee investigations revealed that United Metals Selling Corporation sold only 5 million pounds of copper from April to August 1907 (U.S. Congress, 734; see also 717-40). The normal amount ranged from 150 million to 250 million pounds. When Congressional Counsel Samuel Untermyer pressed assistant manager Tobias Wolfson of the United Metals Selling Corporation for an explanation, he stated that no buyers could be found for copper. Untermyer then quipped, "And all of a sudden, in October, they were interested in 93 million pounds in a single month?" Wolfson responded, "Yes. They had used up all that they had bought." As a result of these market manipulations, the price of raw copper plummeted, and the price of copper mining stocks broke. Having reached a high of nearly \$121 a share in January 1907, Amalgamated Copper fell from \$56 1/4 to \$41 3/4 in October. Although United Copper maintained a steady price throughout the first half of October, the following events led to the total collapse of the Heinze interests.

United Copper first reached the headlines of the *New York Times* on Tuesday, October 15. On Monday its stock had risen from \$39 to \$60 during the first 15 minutes of trading on the Curb Market.² Buying was not done through Heinze brokers. Curb brokers emphasized that Heinze brokers had been taking great pains to keep track of all shares in United Copper that had come out since the high prices of January 1907, in an attempt to distinguish short selling.³ Short positions in United Copper were thus known to be dangerous. Heinze was not interested in the total number of shares outstanding because he believed many shares were held in the western United States, where, in those days, they could take a week or more to reach New York for sale; rather, Heinze was concerned about how many shares were quickly accessible to the market.

Apparently thinking the time was right for a corner, Heinze purchased a large quantity of shares on Monday through the brokerage house of his brother, Otto Heinze. Many shares of United Copper had appeared on the market during trading on Saturday, October 12, and

Heinze suspected that brokerage houses were lending out his shares of United Copper to support short selling of the stock. He ordered Gross and Kleeberg, a brokerage house started in 1904, to purchase 6,000 shares of the stock at ascending prices, so that he was in effect buying his own shares again from short sellers at a higher price to attract more short sales. Of course, the short sellers did not realize that Heinze already owned the shares that they had borrowed and that he was now buying from them. This action, Heinze hoped, would force short sellers to a settlement in a technique known as a "bear squeeze." The squeeze would result when Heinze owned a large percentage of United Copper stock, in which the majority of actively traded shares were his own—shares that he had purchased from brokers who allowed large short-sale positions. Then, even though he had bought shares at increasing prices, by demanding delivery of his shares Heinze intended to force short sellers to come up with shares that they did not possess, and could not possess, unless they bought them from Heinze. Thus the settlement between Heinze and the short seller could be at almost any price and would clearly provide Heinze with a profit as long as there was no other source for United Copper shares.

To punish the exchange houses that had gone short in United Copper stock, Heinze put out an order calling in all his United Copper shares. However, Heinze's actions were ill-advised because his suspicions of short sales turned out to be unfounded. Gross and Kleeberg found many shares not owned by Heinze for sale at high prices. More shares appeared on Tuesday after news of the high stock price spread, so the anticipated time lag between the increase in stock price and the additional number of shares for sale was insufficient to support a corner.

Heinze's corner was further thwarted by what appeared to be the maneuvers of an unknown group of individuals determined to hinder his scheme by controlling a large block of United Copper stock. Newspaper sources reported that on Tuesday the transfer agency of United Copper, T. Buckingham, refused to transfer own-

ership of 17,830 shares of common stock (*Commercial and Financial Chronicle*, January 4, 1908). The agency claimed that the block was held in a joint account and could not be transferred unless both parties agreed. A newspaper article reported that Heinze believed a "market pool" of United Copper stock was being lent out to short sellers in violation of the agreement, although Heinze did not identify who was in the pool (*New York Times*, October 17, 1907). Had the pool been unwilling to cooperate, Buckingham's refusal of the transfer order might have prevented the market pool from upsetting the attempted corner. Announcement of the refusal strengthened United Copper stock on Tuesday, though it still closed down 16 from the previous day. When legal action was threatened against the refusal of transfer, the order was rescinded and the transfer went through.

On Wednesday Heinze's corner attempt suffered the final blow. Gross and Kleeberg were forced to sell United Copper stock to pay for the shares purchased earlier on margin. United Copper fell from \$36 to \$10 a share, and the firm had to suspend operations. The same day, the brokerage house Otto Heinze and Company closed. It was said at the stock market that Heinze and his brokers were "taken to the wall." The brokers had bought large amounts of United Copper stock on margin at increasing prices resulting almost entirely from their own purchases. When they stopped buying, the price fell, threatening their financial position. As Heinze interests were forced to sell their shares purchased on margin, the stock price broke dramatically.

The newspaper attributed the failure of the corner to the market pool of stock held by unknown individuals whose transactions Heinze had attempted to block through the transfer agent. One commentator suggests that Amalgamated Copper interests, namely H.H. Rogers, Stillman, and other powerful financiers, were "waiting in the wings" to deny Heinze an opportunity to corner the market in his stock (Robert Sobel). This analysis is feasible. If the stock was traded infrequently, Heinze would not have been aware of how much stock existed to be unloaded during his corner maneuver.

Notes

¹ Banks were Mercantile National, Consolidated National, Mechanics and Traders, Union, Bank of Discount, Riverside, Northern National, and Merchants Exchange National; trusts were Hudson and Empire (*New York Times*, January 21, 1907).

² The Curb Market in those days actually took place outdoors on the curb of the street. It later moved indoors and is now the American Stock Exchange.

³ A short sale is a maneuver in which the seller, expecting prices to fall, offers stock he or she does not yet own to be delivered at a future date, taking profits from the difference between current (high) prices they would be paid and the future (low) prices they would face to acquire the stock.

several small banks operated by associates of the Heinzes, and by October 21 reorganization of the national banks was complete.

The Run on Trusts

By October 21, nothing resembling a systemic panic had yet stricken the banks, as Sprague points out (1910, 250). Depositors at Mercantile Bank withdrew funds but redeposited them in other New York City banks. The conditions of the economy, however, were uncertain. The apparent lack of liquidity in the financial markets, as discussed above, set the stage for a major financial crisis to erupt from circumstances that in other times might not have sparked concern.

Many historical accounts of the Panic of 1907 cite Monday, October 21, as the beginning of the crisis among the trust companies. On that day the National Bank of Commerce announced that it would stop clearing checks for the Knickerbocker Trust Company, the third largest trust in New York City. However, Vincent Carosso (1987, 535) suggests that the run on Knickerbocker began October 18, when Charles Barney, the Knickerbocker president, was reported to have been involved in Heinze's corner maneuver. Drawing from the private papers of J.P. Morgan, Carosso notes that the National Bank of Commerce had been extending loans to the Knickerbocker Trust to hold off depositor runs. National Bank of Commerce's refusal to continue acting as a clearing agent for Knickerbocker was interpreted as a vote of no confidence that seriously alarmed Knickerbocker depositors.

Morgan, along with James Stillman of National City Bank and George Baker of First National Bank, had organized an informal team to oversee relief efforts during the panic at the national banks (Carosso 1970, 129; 1987, 538-39). Assisting them were several young financial experts responsible for evaluating the assets of troubled institutions and indicating which ones were worthy of aid. Chief among these investigators was Benjamin Strong of Banker's Trust Company, who would later become president of the Federal Reserve Bank of New York.⁴

On Monday evening, October 21, Morgan had organized a meeting of trust company executives to discuss ways to halt the panic. Strong reported to Morgan that he was unable to evaluate Knickerbocker's financial condition in the short time before funds would have to be committed. Unwilling to act on limited information, Morgan decided not to aid the trust; this decision kept other institutions from offering substantial aid as well. On October 22 Knickerbocker underwent a run for three hours before suspending operations just after noon, having paid out \$8 million in cash.

Ironically, next to the front-page article describing the suspension of the Knickerbocker Trust in the Wednesday, October 23, edition of the *New York Times* was a headline describing Trust Company of America, the second largest trust company in New York City, as the current "sore point" in the panic. By attracting attention to Trust Company, the newspaper article greatly exacerbated the serious run on it. Barney, who was president of Knickerbocker, was also a member of the board of directors of Trust Company of America.

It has been argued that the statement in the *New York Times* by George W. Perkins, one of Morgan's partners, citing Trust Company's problems as the current "sore point" was an attempt to isolate the panic at an important, fundamentally sound institution that would presumably be aided through the run by the major financiers (Frederick Lewis Allen 1949, 248-49). Trust Company of America was near the Morgan and Company offices, making it a likely candidate for such a maneuver. During the panic, the newspapers described frequent exchanges of big leather boxes between Morgan offices and Trust Company offices, signaling the exchange of money and securities. However, H.L. Satterlee, Morgan's son-in-law, later emphasized that no banker would have purposely started a run on any bank for fear that the panic might eventually engulf his own institution as well (470).

On Tuesday, October 22, withdrawals from Trust Company of America were approximately \$1.5 million; on the Wednesday when the ill-timed article was published depositors claimed another \$13 million of nearly \$60 million in total deposits. Withdrawals from Trust

Company of America on Thursday, October 24, were a further \$8 million to \$9 million. During the span of the run, which lasted two weeks, Trust Company of America reportedly paid out \$47.5 million in deposits.⁵

Rescue Efforts

Realizing that the failure of Trust Company of America and Lincoln Trust, another institution whose distress had been publicized, would endanger the New York money market, a committee of five trust company presidents formed to assist trusts in trouble. Not all trusts were willing to cooperate, though, so the committee was not able to collect enough money to provide reliable relief for a trust company facing a sudden run. They petitioned Morgan for help.

Morgan, Baker, and Stillman knew that aid for Trust Company of America was not certain and saw that the collapse of several large trusts would be disastrous. Strong had arrived at Trust Company of America sometime after 2:00 A.M. Wednesday and had begun to appraise its assets. That afternoon he reported to Morgan that Trust Company was basically sound and deserved assistance. Morgan channeled about \$3 million to Trust Company just before closing time, which allowed it to resume business the next day.

Aid began to come from several other sources. J.D. Rockefeller deposited \$10 million with the Union Trust to help the trusts and announced his support for Morgan. Secretary of the Treasury George Cortelyou and the major New York financiers met on the evening of Wednesday, October 23, and discussed plans to combat the crisis. Cortelyou deposited \$25 million of the Treasury's funds in national banks the following morning. Between October 21 and October 31, the Treasury deposited a total of \$37.6 million in New York national banks and provided \$36 million in small bills to meet runs. By the middle of November, however, the U.S. Treasury's working capital had dwindled to \$5 million. Thus Treasury could not and did not contribute much more aid during the rest of the panic (Timberlake, 173-78).

Crisis on the Stock Exchange

Meanwhile, by Thursday, October 24, call money on the New York Stock Exchange was nearly unobtainable. Call money was money lent for the purchase of stock equity, with the stock serving as collateral for the loans. Call loans could be called in at any time. The opening rate for call money was 6 percent, but exchange president Ranson H. Thomas noticed a serious scarcity of money. At one point that morning a bid of 60 percent went out for call money. Yet, even at that exorbitant rate, no money was offered. The last recorded transaction of the day was at the opening rate of 6 percent (U.S. Congress, 355). Fearing a total collapse of the stock market, Thomas called Stillman for aid. Stillman referred Thomas to Morgan, who was in control of most of the available funds. While Thomas traveled to Morgan's office, the call money rate on the exchange reached 100 percent.

In his testimony to the Pujo Committee, established in 1912 by Congress to investigate the possible existence of New York City money cartels and their potential conspiracy to precipitate the panic, Morgan's partner Charles Steele described efforts to provide funds to the stock market during the crisis. Morgan, who reportedly discussed the situation at the stock exchange with other bankers before his meeting with Thomas, told Thomas to announce that \$25 million would be available on the exchange floor. After a short time, Steele arrived at the exchange with a list of national banks which, as a group, promised to loan \$25 million to the exchange, including \$4 million from First National and \$8 million from National City. The market borrowed a total of \$18.95 million that day (U.S. Congress, 457).

Indirect use of Treasury funds to forestall collapse of the market during the panic also came under scrutiny during the Pujo investigation. Legally restricted to national banks, Treasury deposits were channeled toward the banks that most quickly presented acceptable collateral, which for the most part meant Treasury bonds. Direct use of Treasury deposits in the stock market was prohibited. In testifying to the Pujo Committee, however, Treasury Secretary Cortelyou explained that

the use of Treasury funds was not specified before they were credited; rather, the major financiers determined the most appropriate application for the money (U.S. Congress, 439). Thus, in effect, nearly all the funds contributed to aid the panic were controlled by Morgan, who decided how much money would be used and where.

Trying to determine whether government funds were used directly to ease the credit strain on the stock market, the counsel for the Pujo Committee, Samuel Untermyer, pressed Cortelyou for information about the specific amount of government deposits received by each national bank from the total \$25 million allocated. Cortelyou had no recollection of the transactions and did not know whether the Treasury had records of them.

Estimates of available cash reserves in New York national banks indicate they were high enough to provide funds to the stock market had government funds been denied to the exchange. On August 22, 1907, New York national banks held \$218.8 million. Cash reserves in the "big six" national banks were \$140.7 million.⁶ On December 3, 1907, reserves had fallen to \$177 million for all New York national banks and \$112.5 million for the "big six." During the worst period in the panic, reserves were probably lower. However, to offer their own funds to the stock market, banks would have had to drop below the legal 25 percent reserve requirement. Thus Untermyer's concerns were not without a basis despite the apparent availability of funds from banks. The congressional testimony suggests that Morgan simply allocated the government deposits in national banks to the stock exchange in the same amounts that the government deposited them.

On October 25 another money pool was required. About \$10 million came from the Morgan group, \$2 million from First National, and \$500,000 from Kuhn, Loeb, and Company. This time, however, Morgan allowed the market to determine the call money rate, which remained at nearly 50 percent most of the day. The Morgan funds had restrictions designed to stifle speculation. First, no margin sales were allowed—only cash sales for investment. Also, the full amount of Morgan money was not released until afternoon. Morgan's partner,

Perkins, noted that the money collected for the Friday stock exchange pool was about the most that could be collected that day and yet was barely enough to keep the market open (Allen 1949, 255). Throughout the stock exchange crisis, both Trust Company of America and Lincoln Trust were supported by Morgan's efforts.

Actions of the New York Clearinghouse Association

While financiers were working out the crises with the trusts and the call loan market, money and reserves had become increasingly tight at banks. On October 26 the clearinghouse issued clearinghouse loan certificates as an artificial mechanism to increase the supply of currency available to the public, a tactic it had used in earlier financial crises in 1873 and 1893 (see Richard Henry Timberlake, Gary Gorton, or Ellis Tallman).

Although the national banking system offered no legal mechanism to increase the supply of currency quickly, loan certificates provided an informal (if unlawful) way to free up a sizable amount of cash. In normal business banks used currency as reserve assets and as the medium to clear accounts with each other. Clearinghouse loan certificates enabled banks to monetize their noncurrency assets during a crisis: banks would substitute loan certificates for currency in their clearings, thus releasing the currency to pay depositors who demanded cash. Loan certificates were not recognized as currency by the public or by depositors, and they were supposed to be circulated only among banks. However, A. Piatt Andrew (1908) noted that during the 1907 Panic, a number of substitutes for cash were employed in transactions.

Following the first issue of clearinghouse loan certificates on October 26 during the 1907 Panic, loans initially increased by about \$11 million. During the next three weeks more than \$110 million in certificates were issued in New York City. Nearly \$500 million in currency substitutes circulated throughout the country as a "principal means of payment," according to Andrew (1910, 515). Sprague has criticized

the clearinghouse for delaying the use of loan certificates until after the panic was well under way. He believed that issuing certificates as soon as the crisis struck the trusts would have calmed the market by allowing banks to accommodate their depositors more quickly. Aid would have gone directly to troubled banks and trusts, and the cumbersome device of money pools could have been avoided. Fewer loans would have been called in, thus reducing the tension at the stock exchange (Sprague 1910, 257-58).

The clearinghouse also restricted the convertibility of deposits into cash—an action which, like issuing loan certificates, was illegal. The restriction, referred to as “suspension of payments,” increased transaction costs. Nevertheless, banks continued other business activities such as accepting deposits and clearing checks. The suspension of payments spread across the country through the system of correspondent banks. Though convertibility was widely restored by the beginning of January, in a few instances loan certificates and other substitutes for cash circulated as late as March 1908.

Distress Spreads

New York City government was also nearing a financial crisis of its own. It needed \$30 million in new funds but had delayed a bond issue because of the situation in the financial markets. The city had attempted to float a bond issue in the summer of 1907, but even then the bonds had not found a market. Though no source specifies how the New York City Comptroller financed city expenditures for the interim, it seems the city used short-term loans to pay its expenses until another bond issue could be attempted. The Mayor of New York, George McClellan, approached Morgan on Monday, October 28, with the city's financial problems. Short-term obligations were coming due, and the city had no funds with which to pay them. Morgan recognized that if the city defaulted on its loans, the crisis could become completely unmanageable.

Morgan, Stillman, and Baker thus agreed on October 29 to underwrite a \$30 million, 6

percent bond issue of New York City. Morgan devised a plan in which the major banks would take pro rata shares of the issue and deposit them with the clearinghouse. The clearinghouse would then issue clearinghouse loan certificates in an equal amount and credit them to the city's accounts at First National and National City.

Meanwhile, the lack of money to the call loan market was threatening the brokerage house of Moore and Schley. The firm had borrowed \$25 million from New York banks, placing a large block of Tennessee Coal, Iron, and Railroad Company stock as collateral. The loans were about to come due. To complicate matters, the brokerage was already using the same stock as collateral on other loans it had granted to its senior partner, Grant B. Schley, Baker's brother-in-law.

If Moore and Schley liquidated the stock to pay off its loan, the price of the stock would have tumbled, causing the call loan market to become even tighter. In the face of an already weak stock market, such a disruption could have been disastrous, undermining confidence even further.

Morgan eventually solved the problem by giving his support to a plan designed by his attorney and friend, Lewis Cass Ledyard. Ledyard proposed that U.S. Steel buy Moore and Schley's shares of Tennessee Coal, Iron, and Railroad, paying for them with its own highly rated 5 percent gold bonds. Carosso (1970) has noted that this maneuver was important for several reasons. Moore and Schley would be saved without depressing the stock market, and U.S. Steel would be able to absorb a competitor. The innovative aspect of this arrangement was that it involved no currency in a market that was already cash-short from the runs on the trust companies. The deal went through on Monday, November 4, after President Roosevelt agreed not to oppose it on antitrust grounds.

The crisis at the trust companies continued during the Moore and Schley episode. Trust Company of America and Lincoln Trust required further aid, and Morgan convinced other trust presidents to support a \$25 million loan for the troubled institutions. The funds were provided on November 4 after several nights of negotiation. The panic began to ease

when the trust company presidents organized by Morgan agreed to form a consortium to support trust companies facing runs.

The New York Clearinghouse had detailed knowledge of the quality of bank assets in New York. A similar, formal organization of trust companies would have had current knowledge of the assets and liabilities of its member trusts. Such an organization could have more readily assessed the situation at trust companies facing runs than the ad hoc consortiums and money pools organized by Morgan. As Sprague has argued and experience supports, however, the legislative solution to a major crisis is usually more government regulation rather than improved industry self-supervision (1910, 273).

The Role of the Trusts

It is not surprising that trust companies early on became the focal point of the panic. In New York, trust assets had grown phenomenally between 1890 and 1910, increasing 244 percent during the 10 years ending in 1907, from \$396.7 million to \$1,394.0 million. In contrast, national bank assets grew 97 percent, from \$915.2 million to \$1,800.0 million, while state-chartered bank assets grew 82 percent, from \$297 million to \$541.0 million (Barnett, 234-35). Thus the manner in which trust companies used their assets greatly affected the New York money market. (For a more detailed analysis of the role of trusts in the panic, see Moen and Tallman.)

Trust companies were much less regulated than national or state banks in New York. In 1906 New York State instituted a requirement that trusts maintain reserves at 15 percent of deposits, but only 5 percent of deposits needed to be kept as currency in the vault. Before that time trusts simply kept whatever reserves they felt necessary to conduct business. National bank notes were adequate as cash reserves for trusts while national banks in central reserve cities like New York were required to keep a 25 percent reserve in the form of legal tender or specie.

Trusts were originally rather conservative institutions, managing estates, holding securi-

ties, and taking deposits, but by 1907 trusts were performing most of the functions of banks except issuing bank notes. Many of the larger trusts specialized in underwriting security issues. Others wrote mortgages or invested directly in real estate—activities barred or limited for national banks. New York City trusts had a higher proportion of collateralized loans than did New York City national banks. Conventional banking wisdom associated collateralized loans with riskier investments and riskier borrowers. The trusts, therefore, had an asset portfolio that may have been riskier than those of other intermediaries.

National and private banks found the investment banking functions of trusts so useful that many of them gained direct or indirect control of a trust through holding companies or by placing their associates on a trust's board of directors. In many instances a bank and its affiliated trust operated in the same building.

Trusts appear to have provided intermediary functions different from those of banks. Although the volume of deposits subject to check at trusts was similar to that at banks, trusts had much less clearing activity than did banks, registering clearings only about 7 percent of the volume of those at banks. Trusts were not then like commercial banks, whose assets are used as transactions balances by individual depositors or firms.

National banks were part of a network of regional banks that had correspondent relationships to expedite interregional transactions (James, 40). Trusts were not part of the correspondent banking system, so their deposits were more local and less directly subject to the recurring seasonal strains on funds.

The most severe runs in New York City were limited to the trust companies, not the state or national banks (Moen and Tallman). Trusts' riskier asset portfolios in conjunction with their ambiguous relationship to the New York Clearinghouse signaled to depositors that the trusts were likely to become insolvent during an economic and financial downturn.⁷ Runs forced trusts to liquidate their most liquid assets, call loans on the stock market. Large-scale liquidation of call loans depressed the value of stocks.

Given the predominance of national banks in the call loan market, extensive liquidation of call loans by trusts threatened the assets of national banks. Although trusts and national banks were legally distinct, both intermediaries operating in the call market were economically integrated. It was because national banks and the clearinghouse were aware that the runs on the trusts could spread to the entire financial system that they acted directly to stop the runs.

Conclusion

Some important policy lessons emerge from this case study of the 1907 Panic. Restriction of the types of investments national banks could make in 1907 did not reduce the overall riskiness of the financial system's assets; rather, the uneven regulation of trusts and banks concentrated riskier assets in a few institutions, primarily the trusts. Negative shocks to trust assets, notably collateralized loans, raised the specter of their possible insolvency. If regulations allowed intermediaries comparable access to all assets and investment opportunities, the potential for

adequate diversification of portfolios might reduce the risk that the collapse of one type of asset would threaten the solvency of an entire class of intermediary.

Nor is it certain that access to the New York Clearinghouse could have averted insolvency among thrifts in 1907, given the high concentration of risk in their portfolios. Although the clearinghouse functioned to some extent as a central bank, lack of explicit legal authority to issue clearinghouse loan certificates kept the clearinghouse from fully exploiting these functions. It did maintain records on the financial health of participating banks and made this information available to members. Thus, when member banks requested aid, the clearinghouse had the information necessary to make a decision quickly. Trusts' limited affiliation with the clearinghouse made information about distressed trusts harder to obtain and probably contributed to the destabilizing isolation of the Knickerbocker Trust.

Even with access to a lender of last resort, under conditions of uneven regulation trust companies would have had the incentives to maintain portfolios with profitable but risky assets. The potential for a financial crisis to drive a class of intermediaries into insolvency would remain.

Notes

¹Kindleberger refers to "copper speculation" that involved more than just Heinze's corner attempt as a prime contributor to the panic. Analysis of the copper market during 1907 is interesting (see the testimony of Wolfson in U.S. Congress), but the direct links to the panic are less clear. The connection is left for further research.

²For a discussion of the money supply process in the National Banking Era, see Goodhart or, for a more concise description, Tallman.

³The aberration of gold flows exacerbated the amount of gold shipments to the United States when European importers paid for shipments of cotton and cereal from the United States during the panic.

⁴There he was recognized as a decisive leader during the early years of the central bank. His untimely death in 1928, which left the young Federal Reserve System with-

out focused leadership, has been argued by some as being the reason for the Fed's inept handling of the bank panics early in the Great Depression (see Friedman and Schwartz).

⁵Carosso (1987), citing figures in J.P. Morgan's private records. A run on Lincoln Trust, a smaller institution, began with withdrawals exceeding \$1 million.

⁶Sprague (1910, 234). Sprague notes that the six national banks (National City, National Bank of Commerce, First National, Chase National, Park National, and Hanover National) had grown from 30 percent to 60 percent of the total assets in New York national banks from 1873 to 1907.

⁷Kindleberger suggests that the trusts were responsible for excessive credit expansion related to speculative activities prior to the Panic of 1907.

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Capital Requirements for Interest-Rate and Foreign-Exchange Hedges

Larry D. Wall, John J. Pringle, and James E. McNulty

Though U.S. financial regulations have tried to keep pace with depository institutions' use of off-balance-sheet items during the last 10 years, current regulatory standards governing banks' use of interest-rate and foreign-exchange instruments focus only on credit risk. This article explains the treatment of the instruments under the current risk-based capital guidelines. It also proposes an approach that would enable regulators to monitor risk exposure by basing capital requirements on internal risk standards.

Over the past decade, off-balance-sheet financial instruments used to hedge risk associated with interest-rate and foreign-exchange-rate fluctuations have proliferated. The growth in both the types of instruments and their sophistication can be traced to the increased volatility of interest rates and foreign exchange rates during the late 1970s and early 1980s, and to the rise in international financial transactions. New technologies have also been an important catalyst, making it possible to communicate and process the information necessary to manage contracts and evaluate the instruments.

Domestic depository institutions are prime participants in the markets for interest-rate and foreign-exchange-rate contracts. Com-

mercial banks and savings and loan associations can use these instruments not only to control their own exposure but also, in large part, to help commercial and institutional customers manage their financial risk. However, participation in the interest-rate and foreign-exchange-rate market can significantly alter a depository's riskiness. An institution can use such contracts not only to minimize its exposure to risk but also to speculate and, hence, increase its risk. Providing these instruments to customers may also subject an institution to greater risk if the products are not properly hedged. Moreover, products such as interest-rate and currency swaps can generate credit risk since the counterparty to the contract could default on its obligations.

Bank and thrift regulators in the United States are aware of the potential of these off-balance-sheet instruments to alter depositories' risk exposure substantially. Commercial bank regulators have formally incorporated the credit risk associated with interest-rate and foreign-exchange instruments into their risk-based capital standards. These standards focus solely on credit risk, however: bank's capital requirements do not explicitly consider the impact of interest-rate risk and foreign-

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CURRENCY TRADING

EXCHANGE RATES

Friday, May 11, 1990

The New York foreign exchange selling rates below apply to trading among banks in amounts of \$1 million and more, as quoted at 1 p.m. Eastern time by Reuters Trust Co. The full transactions provide lower units of foreign currency per dollar.

Country	U.S. \$ equiv.		Currency	
	Per 100	Per 100	Per 100	Per 100
Argentina (Dollar)	26897	26897	26897	26897
Australia (Dollar)	7688	7285	1.3285	1.3187
Austria (Schilling)	25567	25582	11.50	11.32
Belgium (Dollar)	2.6523	2.6523	3.79	3.79
Canada (Dollar)	89.60	89.51	12.88	12.88
Commercial rate	89.58	89.58	32.27	32.27
Denmark (Krone)	1.6775	1.6765	3.04	3.04
30-Day Forward	1.6811	1.6812	3.05	3.05
90-Day Forward	1.6839	1.6839	3.05	3.05
180-Day Forward	1.6847	1.6847	3.05	3.05
France (Franc)	6.55	6.55	1.788	1.788
30-Day Forward	6.55	6.55	1.788	1.788
90-Day Forward	6.55	6.55	1.788	1.788
180-Day Forward	6.55	6.55	1.788	1.788
Germany (Mark)	1.9364	1.9364	2.20	2.20
30-Day Forward	1.9364	1.9364	2.20	2.20
90-Day Forward	1.9364	1.9364	2.20	2.20
180-Day Forward	1.9364	1.9364	2.20	2.20
Italy (Lira)	2.036	2.036	2.036	2.036
30-Day Forward	2.036	2.036	2.036	2.036
90-Day Forward	2.036	2.036	2.036	2.036
180-Day Forward	2.036	2.036	2.036	2.036
Japan (Yen)	161.28	161.28	161.28	161.28
30-Day Forward	161.28	161.28	161.28	161.28
90-Day Forward	161.28	161.28	161.28	161.28
180-Day Forward	161.28	161.28	161.28	161.28
Spain (Peseta)	166.64	166.64	166.64	166.64
30-Day Forward	166.64	166.64	166.64	166.64
90-Day Forward	166.64	166.64	166.64	166.64
180-Day Forward	166.64	166.64	166.64	166.64
Sweden (Krona)	4.66	4.66	4.66	4.66
30-Day Forward	4.66	4.66	4.66	4.66
90-Day Forward	4.66	4.66	4.66	4.66
180-Day Forward	4.66	4.66	4.66	4.66
Switzerland (Franc)	1.4835	1.4835	1.4835	1.4835
30-Day Forward	1.4835	1.4835	1.4835	1.4835
90-Day Forward	1.4835	1.4835	1.4835	1.4835
180-Day Forward	1.4835	1.4835	1.4835	1.4835
United Kingdom (Sterling)	1.9364	1.9364	1.9364	1.9364
30-Day Forward	1.9364	1.9364	1.9364	1.9364
90-Day Forward	1.9364	1.9364	1.9364	1.9364
180-Day Forward	1.9364	1.9364	1.9364	1.9364
U.S. (Dollar)	1.0000	1.0000	1.0000	1.0000

FUTURES OPTIONS

JAPANESE YEN (MM)		U.S. DOLLAR (MM)		U.S. DOLLAR (MM)	
Strike	Call - Settle	Strike	Call - Settle	Strike	Call - Settle
Price	Jun-c	Jun-c	Jun-c	Jun-c	Jun-c
64	1.00	1.00	1.35	0.70	0.37
65	0.90	1.35	1.71	0.48	0.47
66	0.35	0.50	1.71	1.00	1.52
67	0.25	0.50	0.84	1.74	2.12
68	0.13	0.50	0.50	2.60	2.85
69	0.05	0.50	0.30	2.52	2.48
Est. vol. 33,917. Ther. vol. 1,597 calls, 2,317 puts					
Open Interest Ther: 82,679 calls, 34,311 puts					
U.S. DOLLAR (MM)		U.S. DOLLAR (MM)		U.S. DOLLAR (MM)	
Strike	Call - Settle	Strike	Call - Settle	Strike	Call - Settle
Price	Jun-c	Jun-c	Jun-c	Jun-c	Jun-c
30	1.05	1.20	2.45	0.11	0.35
40	1.35	1.54	2.80	0.20	0.54
50	0.85	0.97	1.60	0.60	0.98
60	0.30	0.50	1.00	1.35	2.02
70	0.10	0.30	0.75
80	0.05	0.17	0.51
Est. vol. 10,888. Ther. vol. 10,792 calls, 5,148 puts					
Open Interest Ther: 82,748 calls, 35,376 puts					
U.S. DOLLAR (MM)		U.S. DOLLAR (MM)		U.S. DOLLAR (MM)	
Strike	Call - Settle	Strike	Call - Settle	Strike	Call - Settle
Price	Jun-c	Jun-c	Jun-c	Jun-c	Jun-c
85	1.31	...	0.95	0.72	0.63
90	0.83	0.47	0.78	0.23	0.99
95	0.32	0.30	0.53	0.42	1.23
100	0.30	...	0.30	0.70	1.42
105	0.10	...	0.20	1.05	...
110	0.05	...	0.20	1.47	2.48
Est. vol. 1,304. Ther. vol. 231 calls, 369 puts					
Open Interest Ther: 7,374 calls, 10,441 puts					
U.S. DOLLAR (MM)		U.S. DOLLAR (MM)		U.S. DOLLAR (MM)	
Strike	Call - Settle	Strike	Call - Settle	Strike	Call - Settle
Price	Jun-c	Jun-c	Jun-c	Jun-c	Jun-c

exchange risk, although regulators have expressed a desire to include these components as soon as a practical method can be determined.

Thrift regulators, on the other hand, have explicitly incorporated interest-rate instruments in calculating interest-rate risk for thrifts' capital requirements. They do not consider foreign-exchange instruments, though, primarily because very few thrifts have significant exposure in this area; nor do they include credit risk associated with interest-rate instruments.¹

A review of the capital requirements now in place surrounding these instruments suggests the advantages of accounting for their impact on an institution's riskiness through capital standards and not merely as an aspect of credit risk. The impracticality of using off-site monitoring as a method of evaluation seems to be a major obstacle to linking an institution's involvement in these markets with capital requirements. This article reviews existing capital requirements for foreign-exchange-rate and interest-rate instruments and proposes an approach that is less cumbersome, more accurate, and potentially more cost effective. The discussion begins by summarizing

key features of the most widely used contracts to control interest-rate and foreign-exchange-rate risk.

Interest-Rate and Foreign-Exchange Instruments

A wide variety of interest-rate and foreign-exchange instruments has emerged to meet risk management needs. In addition to providing the usual kinds of contracts, commercial banks and other financial intermediaries have been ingenious in customizing these instruments to meet clients' particular needs. The following discussion will outline some of the key features of common contracts.²

All interest-rate and foreign-exchange instruments are linked in that the value of these contracts is a function of foreign-currency exchange rates or interest rates and thus outside the control of the participants. For this reason they are sometimes called derivative assets. Another common feature of all of these instruments is that they are a zero-sum game—that is, the amount of payments received by one party must equal those made by the other party.³

An important difference distinguishing various contracts is that some are traded on exchanges whereas others are negotiated by the two participants. Exchange-traded contracts offer the advantage of minimal credit risk because the exchange itself is a party to the contract. When a firm buys, for example, a call option on an exchange, its contract is with the exchange rather than the seller, and the exchange assumes responsibility for making payment on the call. Partly because of the reduction in credit risk, exchange-traded contracts are also more liquid, making it easier to enter into or close out a position.

Exchange-traded contracts are, however, less flexible. These contracts' fixed maturities may or may not be appropriate for controlling a firm's exposure. A further disadvantage of exchange-traded contracts is that they may require the posting of margin—funds set aside to cover potential losses. In this way exchanges are able to eliminate the credit risk of their contracts. Contracts are "marked to market" periodically, in most cases at least once every trading day, by transferring funds from the margin to the other party whenever adverse moves occur in the market price of the contract. For most (but not all) nonexchange contracts no collateral is posted, nor is there any transfer of funds before the settlement date.

Options, Futures, and Forward Contracts. Virtually all interest-rate and foreign-exchange-rate instruments can be created from some combination of put and call options. A call option gives its purchaser the right—but not the obligation—to *purchase* a given type of asset at a prespecified price (the exercise price) at a prespecified date in the future (the expiration date).⁴ For example, an investor may own an option to purchase Japanese yen at the rate of 155 yen per dollar on or before October 1. If the yen's market price on the expiration date is 170 per dollar, the owner will exercise the option since the market value of the yen is greater than the exercise price on the option. If, however, the dollar buys 135 yen on October 1, the holder will not exercise the option because yen may be purchased at a lower price in the market. The buyer typically pays the price of an option (its premium) up front. A put option, on

the other hand, gives its owner the right to *sell* an asset at a fixed price on a prespecified date in the future. The put option is otherwise analogous to the call option. Both types of options are traded on exchanges and may be purchased from certain financial intermediaries as well if exchange-traded options are inadequate.

Another important off-balance-sheet hedging instrument is the futures contract. Traded on an exchange, futures contracts obligate one party to purchase an asset at a fixed price at a prespecified date in the future. For example, a Treasury bill futures contract may require one party to purchase, on the prespecified date of November 1, for the prespecified amount of \$920, a \$1,000 Treasury bill that matures in 360 days. The party that buys the Treasury bill is said to have "gone

"Virtually all interest-rate and foreign-exchange-rate instruments can be created from some combination of put and call options."

long" in Treasury bill futures, while the party which agrees to sell is "short." In contrast to options, which involve no obligation to the buyer after the initial purchase, futures contracts entail risk for both sides.

A futures contract can be created from a combination of a call and put option. Taking the long side of a future maturing on September 15 with a current price of \$905, for example, is identical to buying a call contract and selling a put contract in which both options mature on September 15 and have a strike price of \$905.

Closely related to the futures contract is the forward contract. Unlike the futures contract, however, the forward contract is not traded on an exchange, typically requires no posting of margin, is not marked to market prior to maturity, and can be tailored to any maturity.

Caps, Floors, and Collars. Options, futures, and forward contracts all involve a single transaction at some point in the future. Bonds and many other contracts that a firm might wish to hedge, on the other hand, involve multiple payments in the future. Several instruments developed in the 1980s are designed to reduce the number of contracts required to hedge multiple payments. One popular contract is an interest-rate cap.⁵ In a cap agreement, should the market rate exceed the cap rate, the writer (seller) pays the purchaser an amount equal to the market rate minus the cap rate; in return, the borrower pays a one-time fee in advance. The effect of the cap then is to set a maximum cost on the firm's outstanding debt.

Suppose, for instance, a firm issues debt with an interest rate of LIBOR (London Inter-

“Several instruments developed in the 1980s are designed to reduce the number of contracts required to hedge multiple payments. One popular contract is an interest-rate cap.”

bank Offer Rate) and buys a LIBOR cap of 10 percent with the notional principal of the cap equal to the principal on the loan.⁶ As long as the LIBOR rate remains below 10 percent, the business will pay that rate on its debt and receive nothing from its cap. Should the LIBOR rate exceed 10 percent, the firm would receive a payment from the cap dealer. If LIBOR is at 11 percent, for example, the firm must pay interest equal to 11 percent of the loan principal to its debtholders but will receive a payment equal to 1 percent of the notional principal. Because the net value of the two payments is 10 percent, the business's net interest payments are capped at 10 percent. Interest rate caps are “over-the-counter instruments”; that is, they are not traded on an exchange but may be purchased from some large commercial and investment banks.

Caps resemble options in two respects: the buyer of the cap must make an up-front payment, and after the contract is signed only the cap writer is at risk. Major differences exist between the two contracts, nonetheless. Whereas an option typically entails purchasing an asset at a fixed price, a cap involves paying only an interest differential. Another distinction is that the payments under a cap are linked; if the seller of a cap defaults on one payment, then the rest of the payments under the cap are terminated, though the buyer can still sue for the net present value (including the future interest earnings) of the future payments.

A floor is an option-like interest-rate risk management tool similar to a cap, except that a floor sets a minimum rather than a maximum rate. Thus in a floor agreement, should the market rate drop below the floor, the writer (seller) pays the purchaser an amount equal to the floor rate minus the market rate. Floor agreements can be particularly useful to those investing in floating-rate debt instruments who nonetheless have fixed-rate obligations. Consider, for example, an insurance company that wants to fund the purchase of a floating-rate asset with receipts from the sale of fixed-rate annuities. If the interest rate on its asset drops below the rate on its annuities, the insurance firm will incur a loss. A floor arrangement, however, would assure the firm that the combined return from the debt and the agreement will exceed its cost of its annuities. Floor agreements, like caps, are traded over the counter rather than on exchanges.

Collar agreements combine buying a cap and writing a floor in which the cap rate differs from the floor rate. A collar is useful to contain the effective interest costs of a floating-rate debt issue within a narrow band. Suppose a firm issues debt with an interest rate of LIBOR and enters into a collar, with the floor rate set at 9 percent and the cap rate set at 11 percent. If LIBOR rates drop below 9 percent, the firm will pay a total of 9 percent: the debtholders will receive LIBOR, and the other party to the collar, 9 percent minus LIBOR. The business will pay LIBOR, and no payments will be made under the collar agreement should LIBOR stand between 9 and 11 percent. If LIBOR exceeds 11 percent, the firm's net cost

will be 11 percent: the debtholders will receive LIBOR and the writer of the collar will pay the firm LIBOR minus 11 percent. Firms wishing to cap their interest payments without paying an up-front fee to cover the cost of the cap may choose collars (because the cost of purchasing a cap can be offset by the income from writing a floor).⁷ Collars are an over-the-counter instrument.

Swaps. Interest-rate swaps, in which two parties exchange interest-rate payments, are another popular risk management tool. The most common version of the interest-rate swap requires one party to pay a fixed rate of interest while receiving a floating interest rate from the other party. A fixed-to-floating-rate interest-rate swap can effectively convert a floating-rate obligation to a fixed-rate obligation (or vice versa). An interest-rate swap is similar to a collar in which the floor and cap rates are equal. A swap might also be viewed as a linked set of forward contracts. Interest-rate swaps are usually arranged so that no up-front payment is required from either party.

Interest-rate swap agreements are not traded on an exchange. In order to reduce the credit risk associated with a swap, the parties do not actually exchange the full value of the interest payments. Instead, the difference between the fixed and floating rates is calculated, and a single net payment is written by the party owing the greater amount of interest.

Another type of swap is a currency exchange in which two parties agree to trade payments in different currencies at a predetermined exchange rate. For example, Southeast Manufacturing might borrow Swiss francs in the Eurobond market and use a currency swap to convert the obligation to dollars. In such an agreement the company could pay an initial amount in Swiss francs equal to the principal on the loan, make periodic interest payments in U.S. dollars, and make the last payment of interest and principal in U.S. dollars. In return, the firm would receive U.S. dollars at the initial date and receive interest and principal in Swiss francs. The swap not only effectively changes the borrowed Swiss francs to dollars but also provides a prearranged exchange rate for converting Southeast's dollars into francs. These in turn will be used to pay interest and repay the

principal at the end of the loan. Currency swaps, like interest-rate swaps, are not traded on an exchange.

Regulation of Interest-Rate and Foreign-Exchange Instruments

Exchange-traded interest-rate and foreign-exchange instruments are regulated by the exchanges and, domestically, by the United States Commodity Futures Trading Commission. No U.S. government organization directly regulates transactions of instruments not traded on an exchange. Although both commercial bank and thrift regulators have established regulations to temper the impact of these instruments on the safety and soundness of banks, none of the federal regulators of depository institutions have responsibility for the markets in these instruments.

Thrifts and Interest-Rate Risk Management. Although thrifts have traditionally had mismatched asset and liability maturities that call for measures to contain interest-rate risk, most hedging techniques were not specifically authorized for thrifts by regulation until the early 1980s.⁸ In 1981, for the first time, thrifts were officially permitted to use futures and options to control their interest-rate risk. Futures, however, proved a poor hedging instrument for many thrifts. A look at thrifts' experience with futures illustrates why regulators began to encourage swaps as an alternative way of managing interest-rate risk.

Using financial futures to hedge interest-rate risk requires a thrift to take a short position in the futures market. Because most thrifts suffer losses when interest rates increase (since a large share of their assets are at fixed, long-term rates), they need an off-balance-sheet hedge that rises in value when interest rates increase. Futures agreements provide for the purchase or sale of a debt security, in which the value of the underlying security decreases as rates go up. The optimal futures hedge for a thrift therefore involves a promise to sell the asset at a fixed price in the future. This places the thrift in a "short" position. What happened between 1982 and 1986,

of course, was that interest rates fell substantially so that the value of the underlying asset increased. As a result, many thrifts experienced huge losses on their futures hedge positions. Even the most well constructed short hedge in the financial futures market will produce losses if interest rates drop because the hedge position has been established precisely to produce gains that will protect the institution if rates rise.

Another drawback of futures positions is that, unlike swaps, they must be marked to market daily. Thrifts, like most financial institutions, follow accounting practices whereby assets generally are counted at their book value rather than market value. However, market losses on futures positions have to be recorded as such immediately, although their recognition in the income statement is normally deferred over the time remaining to maturity of the instrument being hedged. In addition, margin calls on futures contracts to offset losses to the exchange create an immediate cash outflow for the thrift.

The combination of large deferred losses and cash outflows as a result of *declining* interest rates created tremendous psychological problems for an industry that had just experienced huge setbacks because of *rising* interest rates during the 1979-82 period. These losses convinced many boards of directors, as well as regulators, that futures are not appropriate hedging tools for thrifts.⁹ Nor do many thrifts possess the level of expertise necessary to manage futures positions. The fact that Treasury bill futures contracts extend only two years forward also makes the futures markets impractical for institutions that want to hedge long-term liability costs.

The interest-rate swap market, and to a lesser extent the market for caps and collars, became a natural alternative for thrift financial managers seeking to avoid these problems. Thrift regulators' endorsements of such "cash market" hedging as interest-rate swaps and interest-rate caps, in lieu of futures hedging, provided thrifts with another stimulus to switch to swaps as a way of managing interest-rate risk. Caps, collars, and swaps do not entail margin calls, and other problems such as basis risk (arising from changes in the spread between rates) are more manageable. Many

thrift financial managers thus became more comfortable with swaps than with other hedging techniques.

Research has confirmed the suitability of swaps for hedging mortgage portfolios. Robert Crane and Peter Elmer simulated the performance of a number of asset and liability structures for a financial institution under 1,500 different interest-rate scenarios. The strategy that proved best on a risk-return basis was to fund fixed-rate assets (in this case, 15-year mortgages) with deposits that had been extended in maturity through interest-rate swaps. In fact, swaps performed so well in these simulations that they reduced the risk of 15-year fixed-rate mortgages below that of a strategy based on adjustable-rate lending.

Maturity Matching Credit. One regulatory development that stimulated the growth of the swap market was the maturity matching credit, one of the earliest formal risk-based capital requirements, instituted by the Federal Home Loan Bank Board in 1987. The maturity matching credit reduced the capital requirement for thrifts if their asset-liability gap (the amount by which its liabilities of a given maturity exceed assets of the same maturity) ranged between 15 and 25 percent of total assets. Institutions whose cumulative one- and three-year gaps were both below 15 percent would qualify for a credit equal to 2 percent of assets, while those with gaps in the 15 to 25 percent range would receive credit on a sliding scale. Thus a thrift with gaps less than 15 percent, which would otherwise have been required to hold capital equal to 5 percent of assets, could lower its requirement to 3 percent. The maturity matching credit provided undercapitalized thrifts with a strong incentive to hedge, thus giving a further boost to participation in the swap market.

Table 1 shows how a swap would qualify a thrift to receive maturity matching credit. This hypothetical institution has total assets of \$100 million, \$70 million of which has a maturity more than three years. The thrift has \$10 million in assets of one year or less and \$40 million in liabilities of one year or less. Thus its one-year asset-liability gap is a negative \$30 million—30 percent of its assets. Its cumulative three-year gap is a negative \$40 million, or 40 percent of assets. Because both its

Table 1.
Gap Analysis
First Federal Savings and Loan Association

	Maturity or Time to Repricing:			Total
	Under One Year	One to Three Years	Over Three Years	
Before Hedging:				
Assets	10	20	70	100
Liabilities and Net Worth	40	30	30	100
GAP (A - L)	-30	-10	40	
Cumulative GAP	-30	-40	0	
After Hedging:				
Assets	10	20	70	100
Liabilities and Net Worth	40	30	30	100
Adjustment of Liabilities for Hedging*	-25	0	25	0
Liabilities after Hedging	15	30	55	100
GAP (A - L)	-5	-10	15	
Cumulative GAP	-5	-15	0	

*The hedge is a \$25 million interest-rate swap that converts variable-rate liabilities into fixed-rate liabilities.

one- and three-year gaps exceed 25 percent of its assets, the institution would not qualify for the maturity matching credit and thus would be required to hold capital at 5 percent of assets.

By entering into a \$25 million interest-rate swap as the fixed-rate payer, the institution would be able to reduce both its one-year and three-year gaps below 15 percent so that it would qualify for the full 2 percent credit. This adjustment occurs because the swap extends the maturity of the short-term liabilities (most likely deposits or repurchase agreements) beyond three years. The line "adjustment of liabilities for hedging" in Table 1 shows that short-term liabilities have been reduced by \$25 million while long-term liabilities have increased by the same amount, lowering the one-year gap to a negative 5 percent and the three-year gap to a negative 15 percent of assets.

A survey of southeastern thrifts in mid-1989 by Craig Ruff showed that those most likely to engage in hedging were the ones with net worth ratios between 3 and 6 percent of assets—precisely the type of thrift that would benefit from the maturity matching credit.

Additional Regulatory Initiatives. Two 1989 regulatory initiatives by the Federal Home Loan Bank Board will probably further encourage thrifts to use swaps. Thrift Bulletin 13, which set out specific responsibilities for management and boards of directors in controlling interest-rate risk, requires each insured thrift's board of directors to set specific limits on the institution's exposure to changes in interest rates. These limits apply to both the percentage change in net interest income and the percentage change in the market value of the net worth of the institution. Thrift Bulletin 13 also requires that each institution with over \$500 million in assets perform a simulation

analysis to estimate its exposure to changes in interest rates.

The rationale for this regulation was that boards of directors should act as the first line of defense against excessive interest-rate risk. Although it has declined since 1984 when the Federal Home Loan Bank Board first began to measure it, most thrifts continue to have a large amount of interest-rate exposure. Regulators expect directors who see numerical estimates indicating high interest-rate exposure at their institution to force management to restructure the balance sheet or engage in off-balance-sheet hedging.

Another 1989 regulation likely to promote hedging is the risk-based capital proposal, which connects thrifts' capital requirements to the impact changes in interest rates are likely to have on the market value of the institution's net worth. Specifically, it states that thrifts must hold capital equal to one-half of the change in the market value of net worth that would result from a 200-basis-point (or 2 percentage point) change in interest rates.¹⁰ Institutions with large amounts of interest-rate risk thus need to hold more capital, and hedging the interest-rate risk through caps, collars, or swaps becomes an attractive alternative.

Apart from 1989 risk-control initiatives, the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 (FIRREA) includes a provision requiring the Office of Thrift Supervision (OTS) to establish risk-based capital regulations no less stringent than those imposed on nationally chartered banks (Title III, Section 5). Although the FIRREA provision does not require OTS standards to equal national bank standards exactly, its enforcement could mean that commercial bank regulations for interest-rate and foreign-exchange instruments might also be imposed on thrifts.

Regulation of Commercial Banks' Use of Hedging Tools

Because commercial banks have historically been far less exposed to interest-rate changes than most thrifts, regulation of bank participa-

tion in the interest-rate and foreign-exchange instruments market has followed a different course. Although large commercial banks routinely take foreign-exchange risks, losses from such involvement have not been a significant factor undermining the financial stability of any major bank in recent years. Bank regulators have been concerned primarily with credit risk. Though they have been increasingly sensitive to off-balance-sheet items, U.S. bank regulators did not consider them formally until 1986. Capital regulations adopted in the United States in 1981 and still in effect through 1989, for example, applied only to on-balance-sheet assets. In 1988, however, the Group of Ten countries, plus Luxembourg and Switzerland, reached an accord, called the Basle Agreement, on new procedures for evaluating capital.¹¹ The new standards extend to off-balance-sheet activities and weight both on- and off-balance-sheet activities according to their credit riskiness.¹² Interest-rate and foreign-exchange-rate risk are not, however, explicitly incorporated into the capital guidelines.

Although the Basle Agreement applied only to large banking organizations with international operations regulated by the signatories, U.S. regulators have decided to impose the requirements on all domestic commercial banks as well. These standards have since been further extended to cover the European Community (EC) and the European Free Trade Association (EFTA).¹³ One important limitation of the agreement is that the capital standards do not necessarily apply to firms not regulated by central banks or other commercial bank overseers. U.S. investment banking and insurance companies, for example, are not regulated by U.S. federal bank regulatory agencies and, hence, are not bound by the capital regulations governing swaps—a situation with potentially significant competitive implications (Joanna Pitman).

The new capital guidelines, which are to become fully effective at the end of 1992, will require banks to maintain a ratio of at least 8 percent total capital to risk-weighted on- and off-balance-sheet items. By the end of 1992, banks will also have to maintain a core capital ratio of at least 4 percent. Core (tier 1) capital, as defined by the Basle Agreement, consists

of the book value of common and perpetual preferred equity, minority equity interest in consolidated subsidiaries, and retained earnings less goodwill. Supplementary (tier 2) capital includes items like general loan loss reserves, mandatory convertible debt, perpetual debt, subordinated debt, and limited-life preferred stock. Total capital is the sum of core and supplementary capital. Transitional arrangements provide for banks to arrive at a total capital ratio of at least 7.25 percent by the end of 1990, with core capital elements totaling at least 3.25 percent.

Risk Weighting. On-balance-sheet assets are assigned to various risk categories that are weighted to reflect the extent of uncertainty. Assets with virtually no credit risk, such as cash and central government securities from the industrialized countries belonging to the Organization for Economic Cooperation and Development, are assigned a weight of zero and thus require no capital. Other assets, including most bank certificates of deposit, receive a 20 percent weight, while home mortgages receive a 50 percent weight. Assets of normal credit risk, such as claims on the private sector, fixed assets, and real estate, are assigned a 100 percent weight.

Off-balance-sheet items are first converted into credit-risk equivalent values based on the type of instrument. For example, a credit conversion factor of 100 percent is applied to direct credit substitutes such as standby letters of credit, which obligate banks to supply credit at some unspecified future time. These are then generally multiplied by the risk weights applicable to the counterparty for an on-balance-sheet transaction.

Because off-balance-sheet activities are converted into risk equivalents of on-balance-sheet items exclusively on the basis of credit risk, no capital requirements are imposed on exchange-traded options and futures that contain risk for the exchange by requiring daily payment of variation margin. Also excluded from the calculations are options, caps, and floors written by a bank. These instruments involve no credit risk to the bank since the purchaser's part of the agreement is completed with the initial payment and entails no further obligation that could lead to default.

The credit risk involved in interest-rate and foreign-exchange instruments can be calculated in one of two ways: the current exposure method places most of the weight on the present market value of the interest-rate or foreign-exchange instrument, whereas the original exposure method assigns risk based on the swaps' maturity and does not account for subsequent changes in market value. Though most of the Group of Ten bank supervisors favored the current exposure method, the Basle Agreement allows supervisors to choose either procedure. According to the agreement, bank regulators may permit individual banks to adopt either method, with the understanding that once a bank chooses the current exposure method it cannot switch back to the original exposure method.

The current exposure approach divides credit risk related to an interest-rate or a foreign-exchange instrument into two parts: the actual current exposure and the potential for an increase in exposure, depending on changes in interest rates or foreign-exchange rates. Because the bank would incur losses if the counterparty defaulted and the net present value of the net instrument payments would have positive value to the bank, the actual current credit exposure is viewed as equal to the marked-to-market value of the interest-rate and foreign-exchange instrument. If the interest-rate or foreign-exchange instrument has negative value to the bank, then the bank is not currently subject to credit risk since counterparty default would not result in bank losses. Therefore, the value of the current exposure is set at zero. The potential increase in credit exposure due to interest-rate changes is equal to 0.5 percent of the notional principal of an interest-rate instrument for instruments that mature in more than one year. If the interest-rate instrument matures in one year or less, the potential increase in exposure is set equal to zero.

Because bank regulators view foreign-exchange rates as potentially more volatile than interest rates, a higher capital requirement is imposed on exchange-rate instruments.¹⁴ For those that mature in less than one year the potential increase in exposure is set at 1 percent of the instrument's notional principal. Foreign exchange instruments ma-

Table 2.
Calculation of Credit-Equivalent Amounts for Interest-Rate Swaps
under Risk-Based Capital Guidelines,
Current Exposure Method

Type of Contract and Remaining Maturity	Potential Exposure			+	Current Exposure		Credit Equivalent Amount (Dollars)
	Notional Principal (Dollars)	X Potential Exposure Conversion Factor	= Potential Exposure (Dollars)		Replacement Cost*	Current Exposure (Dollars)**	
1) 120-day forward foreign exchange	5,000,000	.01	50,000		10,000	10,000	60,000
2) Fixed/floating interest- rate swap, single currency, 7 months	5,000,000	0	0		-5,000	0	0
3) Fixed/floating interest- rate swap, single currency, 4 years	10,000,000	.005	50,000		-200,000	0	50,000
4) Fixed/floating interest- rate swap, single currency, 4 years	10,000,000	.005	50,000		150,000	150,000	200,000
5) Fixed/floating interest- rate swap, single currency, 7 years	5,000,000	.005	25,000		325,000	325,000	350,000
6) Cross-currency, floating/floating foreign-exchange swap, 7 years	5,000,000	.05	250,000		350,000	350,000	600,000

*These numbers are purely for illustration.

**The larger of zero or positive mark-to-market value.

turing in more than one year require a potential increase in credit exposure equal to 5 percent of the instrument's notional principal.¹⁵

An example of the computation of the credit equivalent amount is provided in Table 2. The first contract is a 120-day forward foreign exchange agreement. Since the contract matures in under one year, the potential exposure is equal to the notional principal (assumed to be \$5 million) multiplied by a credit conversion factor of 0.01, resulting in an exposure of \$50,000. The contract is also assumed to have a current replacement cost of \$10,000. The second contract is a single-currency, fixed-to-floating interest-rate swap that matures in seven months. The swap matures in less than one year, so its potential ex-

posure is set at zero and only the current exposure is considered. The seven-month swap has a negative replacement cost because the bank would receive a payment for entering into such a swap. Since the regulations do not count negative replacement cost, this swap has a credit equivalent exposure of zero.

The third transaction illustrates calculation of credit equivalent exposure for an interest-rate swap with negative replacement cost but more than one year to maturity. In this case the credit equivalent amount is equal to the potential exposure of the swap. The next two fixed-to-floating interest-rate swaps (4 and 5) illustrate that the potential conversion factor remains at 0.005 regardless of the remaining maturity on a swap. Remaining maturity is less

important for swaps under the current exposure method because any increase in replacement cost will be reflected through the calculation's current exposure component when the swap is next valued for capital adequacy purposes. The last contract is a cross-currency, floating-rate-to-floating-rate currency swap that matures in seven years. Because this contract's potential exposure is far larger than on the seven-year interest-rate swap, the credit conversion factor is 0.05 rather than the 0.005 factor applied to interest-rate swaps.

Although it is less accurate, the original exposure method is computationally easier. It may also be more consistent with the other risk-based standards in that it avoids the need to mark to market. The original exposure method sets the credit exposure equal to the notional principal of the swap multiplied by a conversion factor that depends on each swap's maturity. The agreement permits each regulator to choose whether the conversion factors will be based on the original maturity of the swap or its remaining maturity. The conversion factor for swaps maturing in less than one year is 0.5 percent. An additional 1.0 percent is added to the conversion factor for each additional year. The capital requirement for contracts contingent on foreign exchange is 2 percent for those maturing in one year or less, with another 4 percent added for each additional year.

Once a credit-equivalent amount is calculated, interest-rate and foreign-exchange contracts are treated differently from other off-balance-sheet activities. The credit-equivalent amounts of such contracts are all multiplied by a 50 percent credit-risk weighting, regardless of the counterparty's credit risk, reflecting regulators' judgment that most participants in the swap market are reliable. The Basle Agreement notes, however, that the credit risk weighting on swaps could be raised if the average credit quality of swap counterparties deteriorates or if swap losses increase.

Netting of Swap Payments. An important element in determining capital requirements for a bank's swap portfolio is the contractual agreement to net swap payments across multiple swaps between two parties. Each party does not present payments; instead, the

party that owes presents the net amount due after the various transactions are tallied. This system lessens the likelihood that one party will default after receiving a full payment from the counterparty. The Basle agreement generally permits banks to net contracts subject to novation, an arrangement that automatically amalgamates swaps payable in the same currency at the same time into a single net payment. Netting by novation may be implemented in stages in those countries where national bankruptcy laws allow liquidators to unbundle transactions within a given period under a charge of fraudulent preference.¹⁶ The Basle Agreement does not permit netting where the contracts are merely subject to close-out clauses, in which outstanding obligations on all swaps are accelerated and netted to determine a single exposure in the event of bankruptcy, for example. The supervisors approve of both novation and close-out clauses but contend that these have not yet been adequately tested in the courts. Netting of contracts under close-out clauses may be permitted in the future in jurisdictions where it is upheld in the courts.

Regulation of Interest-Rate Risk. Although capital regulations for banks do not explicitly incorporate the impact of interest-rate risk, regulators are nevertheless concerned about this source of risk. Guidelines for large banks generated by the Office of the Comptroller of the Currency (OCC) stress four components of risk management, according to the analysis of David Scott: a policy on interest-rate risk approved by each bank's board of directors; limits on total risk exposure, preferably stated in terms of income at risk from an interest-rate movement of specified size; a measurement system that adequately captures the riskiness of a bank's portfolio; and development and use of good management reports. James Houpt (see especially p. 9) expressed similar views about Federal Reserve regulatory policies. Neither Houpt nor Scott seems inclined to require all banks to assess the sensitivity of the equity value to changes in interest rates. Indeed, Houpt argues that "in many cases liquid and otherwise solvent institutions can 'ride out' market fluctuations without ever feeling the effect of sizeable rate changes on their bottom lines" (9). Both also suggest that

it would be difficult and probably too costly for regulators to gather sufficient information for accurate off-site analysis of banks' interest-rate risk.

Proposals for Interest-Rate Risk and Capital Guidelines

Making exposure to interest-rate changes a formal part of the risk-based capital system would be desirable for three reasons. First, U.S. regulators have made a considerable effort to secure international agreement on standards in order to assure a level playing field for organizations operating in more than one country. Accounting for interest-rate risk in capital requirements would further promote equality across various countries. Second, formal guidelines should help organizations plan for the future. Third, appropriate standards could discourage banks from exposure to excessive interest-rate and foreign-exchange risk.

In developing an interest-rate risk component to capital standards, regulators must determine which risk measure to use. Several considerations suggest the focus should be on market values rather than accounting values. Economically insolvent organizations have a great incentive to take large risks: such a bank will capture most of the gains while the FDIC incurs most of the losses if a venture fails. In addition, the argument that banks can "ride out" a change in rates is mistaken. Consider, for example, a bank that has become economically insolvent because rates have risen. Managers of such an institution almost certainly will tell regulators that they expect rates to fall, returning the bank to solvency. Interest rates might indeed fall, but they might just as well increase, in which case the bank would lose even more value. No evidence suggests that bank supervisors or managers can out-guess the consensus forecast of the market reflected in current interest rates.¹⁷

Two alternatives are available for analyzing the effect of rate changes on bank equity values: (1) duration analysis and (2) simulation analysis. Duration analysis in its simplest form

condenses a bank's exposure into a single number. A weakness of this approach is that it does not easily incorporate the options implicit in many bank contracts (such as mortgage loans with prepayment privileges) nor does it address the irregularities introduced by caps, floors, and other off-balance-sheet contracts. Simulation analysis, on the other hand, requires regulators to specify the rate changes that will be analyzed. For example, regulators may require a bank to assess the effects of a 100-basis-point increase in rates and the effects of a 100-basis-point decrease.

The problem of off-site monitoring must also be addressed in developing an interest-rate risk component. The Office of Thrift Supervision requires thrifts to report over 600 items dealing with maturity and yields of assets, liabilities, and off-balance-sheet items in order to monitor thrifts' interest-rate exposure (Houpt). Bank regulators would doubtless require at least this level of detail in reporting and possibly more to analyze some of the larger banks' interest-rate exposure accurately.

Scott and Houpt argue with some merit that the costs of such detailed reporting are likely to exceed the benefits in many cases. Moreover, even if regulators could obtain sufficient detail on a quarterly basis at reasonable cost, it is not clear that the figures would adequately reflect a bank's interest-rate exposure between quarterly statements. The ease of buying and selling many assets, such as securitized mortgages, combined with the low cost of entering into off-balance-sheet transactions, makes it possible for an institution's exposure to change dramatically in a very short time. Indeed, a large bank that actively "supplies" interest-rate risk management products to corporations could easily change the magnitude and even the direction of its exposure to interest rates within days (if not hours) after quarterly financial records are closed. Thus, quarterly financial filings may not only be excessively costly but may also fail to measure risk accurately.

One alternative to off-site risk evaluation based on quarterly financial statements would be standards grounded in each institution's internal risk limits. This procedure would be in keeping with current regulatory policies that require institutions to set and

follow internal risk standards. The first step in using internal risk criteria would be to establish a trade-off between exposure to interest-rate fluctuations and capital requirements. In such a system, changes in equity value would include the effect of interest-rate fluctuations on the market value of a bank's assets, liabilities, and off-balance-sheet items. Each bank would then specify its maximum exposure to an interest-rate change and set up information reporting systems to ensure against accidentally exceeding these limits. Of course, the bank would also be required to conduct its operations in such a way that it did not intentionally violate its own guidelines for interest-rate exposure.

If capital standards were based on an institution's internal risk limits, internal reporting requirements could be tailored to the sophistication of each bank's activities. While banks relying on short-term funding and loans with minimal off-balance-sheet items might need very little information about exposure, money-center banks might require highly refined reporting systems. This approach would also offer banks some trade-off between their capital requirements and the complexity of their information-gathering tools. Banks with lower internal tolerances for risk exposure could ensure compliance through sophisticated reporting procedures while other banks might choose to set higher tolerances that could be monitored with less refined systems.

The effectiveness of this approach, which is similar to Thrift Bulletin 13, would depend on careful bank examination. Bank supervisors would have to evaluate an individual bank's information system in relation to its interest-rate risk model to ensure against accidental violations of the exposure limit, and determine that the bank has in fact complied with its own risk guidelines. The capital requirements could levy an automatic penalty (higher capital or fines) for accidental breaches and a more severe one for deliberate infractions.

Reliance on internal standards would keep organizations from increasing their interest-rate risk between quarterly financial statements to evade capital requirements since internal guidelines would apply at all times. One potential problem with this strategy is that a bank's preferred risk positions might

change over time. This shift could be accommodated, however, by letting organizations change their standards. To decrease interest-rate risk, a bank would need only to notify regulators that it planned to reduce its level of permitted risk. Raising the internal risk criteria would require compliance with the capital guidelines for the higher risk level.

The approach outlined here for linking interest-rate risk to capital standards is also appropriate for foreign-exchange exposure. Since a bank's foreign-exchange-rate exposure can change significantly, a system not solely reliant on quarterly financial statements is desirable. Capital requirements based on a bank's internal risk standards would compel institutions to maintain pre-specified limits for foreign-exchange risk at all times.

Conclusion

The market for interest-rate and foreign-exchange instruments evolved rapidly during the 1980s in response to the needs of commercial banks, thrifts, and their customers. Regulators' awareness that the potential of these instruments to increase as well as decrease the risk exposure of insured depositories has also grown. Recognizing that these hedging tools can adversely alter interest-rate risk, thrift regulators have incorporated interest-rate instruments in their capital standards. Bank regulators have responded by considering the credit risk that is associated with interest-rate and foreign-exchange contracts in risk-based capital guidelines.

Though bank regulators are developing guidelines that will enable banks to self-manage their risk exposure, they have not yet evolved a method for including interest-rate and foreign-exchange exposure in their risk-based capital guidelines. A procedure such as the one proposed here, which uses a bank's internal risk limits to establish links between this kind of risk exposure and capital criteria, has two important advantages: first, it would reduce the costs of complying with the capital requirements by allowing banks a choice between the expense of developing more so-

phisticated information-gathering systems and maintaining higher capital levels; second, it offers a more reliable basis for a bank's cap-

ital requirements by accounting for an institution's exposure at all times, not just as it is reported in quarterly financial statements.

Notes

¹The need to measure interest-rate and foreign-exchange risk is not unique, and even some of the proposals to increase market discipline would benefit from incorporating estimates of interest-rate and foreign-exchange risk. For example, the Shadow Financial Regulatory Committee proposes that banks be required to maintain higher levels of total capital, and Wall would require banks to issue puttable subordinated debt. Both of these plans require a sufficiently large capital cushion to ensure that losses by a bank over a short period of time cannot exceed a depository's equity and subordinated debt. Neither of these proposals explicitly addresses the issue of interest-rate and foreign-exchange-rate risk measurement.

²Neither a complete review of the features of these contracts nor a comprehensive discussion of the various types of contracts is within the scope of this study. See Smith, Smithson, and Wilford (especially chapter 3) for a more thorough discussion of interest-rate and foreign-exchange contingent contracts.

³The fact that the exchange of cash flows is a zero-sum game does not necessarily imply that the instruments do not create value for their users. For example, see Wall and Pringle (1988) for a review of possible gains to interest-rate swap users.

⁴An option that can be exercised only on a specific date is referred to as a European option. American options may be exercised any time through a specific date in the future. Exchange-traded options are generally American options. However, Merton has proven that the value of an option is maximized by deferring exercise until the last day if the underlying asset does not make any payment prior to the expiration date. The discussion below focuses on European options since the conditions for deferring exercise frequently hold for interest-rate and foreign-exchange-rate options.

⁵See Abken for a more detailed discussion of caps, floors, and collars.

⁶The notional principal is used for certain interest-rate contingent agreements to determine the dollar value of the payment. The role of the notional principal in determining the payment under a cap agreement is analogous to the use of the principal amount of a loan in the calculation of interest payments on the loan. The pri-

mary difference between the principal on a loan and the notional principal of a cap is that the notional principal never changes hands. The term notional principal is used in a similar manner for floor, collar, and interest-rate swap agreements.

⁷Abken provides examples.

⁸The discussion of thrift regulation is based in part on McNulty.

⁹While the official regulatory attitude toward futures has not changed since the early 1980s, many, if not most, regional thrift regulatory officials take a dim view of futures for the reasons mentioned here.

¹⁰This is one part of a three-part capital requirement that includes a credit-risk component similar to that used for commercial banks and a collateralized borrowing requirement.

¹¹The Group of Ten consists of Belgium, Canada, France, the Federal Republic of Germany, Italy, Japan, the Netherlands, Sweden, the United Kingdom, and the United States of America.

¹²See Keeton for an analysis of the effect of the risk-based capital guidelines on banking organizations' capital requirements.

¹³The European Community consists of Belgium, France, Italy, Luxembourg, the Netherlands, the Federal Republic of Germany, Denmark, Ireland, the United Kingdom, Greece, Spain, and Portugal. The European Free Trade Association includes Austria, Norway, Sweden, Switzerland, Finland, and Iceland.

¹⁴See Board of Governors of the Federal Reserve System and Bank of England and Muffett.

¹⁵For a critique of a draft version of the swap requirements see Smith, Smithson, and Wakeman.

¹⁶Fraudulent preference exists if a debtor favors one creditor over others in settling bankruptcy claims, thus transferring property without a fair consideration in exchange. For an extensive discussion of swap netting see Shirreff.

¹⁷Moreover, even if some group of supervisors could demonstrate a superior ability to predict interest rates, this edge would not necessarily help the regulatory agencies. Private investors would happily bid away any regulator who can consistently out-guess the market on future rate changes.

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J. F. I.



Recovering Bank Profitability: Spoiled Again by Large Banks' Loan Problems

Robert E. Goudreau and B. Frank King

Increased loan-loss provisions at the nation's largest banks sharply reduced the average profitability of U.S. commercial banks in 1989. Other banks increased profitability, with the least profitable categories in 1988 posting the largest gains. For banks in most size categories, 1989 was the third successive year of gains.¹ However, the smallest banks, even with increased profitability, did not perform as well as their larger counterparts.

Southeastern banks differed from the national pattern in two significant ways.² First, profitability of the largest banks declined less in the region than in the nation as a whole. Also in contrast to the national picture, the regions' banks with assets less than \$25 million and those in the \$500 billion-to-\$1 billion

asset size class suffered some decline. These reductions resulted primarily from continuing troubles at banks in Louisiana and developing problems at some Florida banks.

The pattern of 1989's profitability changes at the largest banks is consistent with years of forecasts that interest earnings and expenses would influence banks' income less as dependence on fee income and noninterest expenses grew. Interest earnings seem to have become less important at the largest banks. Had these banks not replaced interest income with fee income during the past several years, they would have been even less profitable in 1989. The smallest banks continued to show unimpressive overall profitability, on the other hand, mostly because of higher non-interest costs than those of their larger counterparts.

The 26 tables at the end of this article tell several stories about bank profitability in 1989 and preceding years. The remainder of this presentation highlights some of the more interesting patterns that emerged or continued during 1989.

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Profitability at the Nation's Banks

Profitability Measures. Bank profitability can have different meanings. For the purposes of this report the focus is on three profitability measures and their components: net interest margin, return on assets (ROA), and return on equity (ROE).³ These measures are described in detail in the appendix. Briefly, net interest margin indicates a bank's interest revenues less interest costs as a proportion of interest-earning assets. For this analysis, revenues are adjusted to take into account different proportions of tax-free interest income earned by various banks. Revenues are also adjusted for credit risk. The adjustment for credit risk is calculated by subtracting a bank's annual provisions for loan losses, which approximate expected losses, from interest earnings. Net interest margin is similar to a business's gross profit margin, differing among other ways in that it omits earnings from fees for services provided, an increasingly important source of revenue for the largest banks.

Return on assets and return on equity are more general measures of a bank's ability to earn from its total operation. A measure of net income as a proportion of total assets, ROA gauges how effectively a bank uses all of its financial and real investments. ROE reflects how much a bank is earning on shareholders' investments.

Profitability Patterns. Reversing the upward movement of 1988 figures, overall adjusted net interest margin dropped to 3.13 percent in 1989 from 3.75 percent in 1988. (See Table 1 for data on net interest margins by size class for the years 1985-89.) As in 1987, loan-loss provisions of banks with assets exceeding \$1 billion accounted for the sharp decline. These provisions were primarily related to loans to less developed countries; however, troubled real estate loans also contributed. In other size classes, margins increased or were stable. Banks with less than \$500 million in assets recorded margins near or above the highest margins earned since 1985.

While banks' net interest margin, particularly when adjusted for credit risk, continues to be the dominant factor affecting bank prof-

itability, there is evidence that the largest banks have reduced their dependence on interest earnings during the last decade. This reduction may have lessened the negative impact of sharply higher loan-loss provisions on these banks' profitability in 1989.

Measuring the extent to which banks have reduced their dependence on interest earnings is difficult because movements in interest rates themselves affect the significance of interest earnings. During the 1980s market interest rates declined substantially, and lower figures for interest earnings would have resulted even in the absence of changes in banks' strategies. To gauge the reduced importance of interest earnings at larger banks, it helps to compare their relative contributions to total revenue in 1985 and 1989, years when measures of interest earnings per dollar of assets were similar at these banks (see Table 2). Though interest earnings per dollar of assets were somewhat higher in 1989 than in 1985, they accounted for 84.6 percent of total earnings, compared with an 87.1 percent share in 1985. At banks in smaller size classes, there is no evidence of similar reductions.

The most significant variation in margin components (shown in Tables 3 through 5) among size groups lay between the largest banks and those in other categories. In 1989 banks having assets exceeding \$1 billion recorded much higher interest earnings and interest costs per dollar of interest-earning assets than did banks in any other size category. But even without considering loan-loss provisions of the larger banks, their interest margin was lower. As mentioned earlier, these banks also recorded much larger additions to loan-loss reserves. Remarkably little variation in interest earnings, interest expense, and provisions appeared among small and medium-sized banks in 1989; the interest components increased while loan-loss provisions declined in all size categories except the largest.

Banks' performance on net interest margins was not translated directly into commensurately lower returns on assets and equity for the nation's banks, however (see Tables 6 and 7). Deviations appeared at both ends of the size spectrum. Though returns improved for all but the largest banks, the greatest relative improvement was recorded by the under-\$25

million and the \$500 million-to-\$1 billion asset size groups. Despite their improvement, profitability levels in banks with assets of less than \$25 million remained well below those of their larger counterparts (other than the largest banks) for the fifth consecutive year.

Prior to 1989 larger loan losses at the smallest banks accounted for part of their lagging returns on assets and equity. In contrast, their additions to loan-loss reserves during 1989 were generally in line with other banks', leading to the conclusion that their low relative return on assets arose solely from higher noninterest expenses (see Table 8). These expenses, which have averaged 3.8 percent of assets for the smallest size class during the past five years, continued to exceed noninterest expense-to-assets ratios in all size classes except the largest.

The general pattern of return on equity followed that of ROA except that the larger banks' lower equity capital ratios allowed them to return more on book value of equity for every dollar of ROA. Like ROA, ROE increased in 1989 for all but the largest banks, and ROE was lowest in the two smallest size classes as well as the largest.

Southeastern Banks

As a whole, banks in the Southeast recorded profitability similar to their national counterparts' levels in 1989, with the exceptions noted earlier. (Data on southeastern banks' profitability are in Tables 9-14.) Loan-loss provisions did not hit the region's largest banks as hard. Their loan-loss increase was 22 basis points compared with an increase of 65 basis points for banks in the nation overall. This better performance carried over into southeastern banks' ROA and ROE.

Other exceptions appear in two size categories. Specifically, interest margins were lower in the \$500 million-to-\$1 billion size categories as a result of higher additions to loan-loss provisions.⁴ Lower adjusted interest margins translated to lower ROA and ROE for the region's banks in this group. Like their counterparts nationally, southeastern banks in the smallest size class reported less prof-

itability on an ROA and ROE basis than did bigger institutions. Though higher loan losses in the smallest class account for a small portion of this distinction, higher noninterest expenses as a percentage of total assets played a major part in these banks' continuing lackluster performance.

Among the region's states, profitability followed the same patterns observed over the past several years. (Data on bank profitability by state are found in Tables 15-20.) Banks in Georgia, whose interest margins are much higher than other states in the region, performed best by all measures, and those in Louisiana brought up the rear. In line with the nation, net interest margin, ROE, and ROA fell to some extent in each state.

The Distribution of Bank Profitability

Analyzing the changes in banks' overall profitability levels reveals certain clues about how banks have responded to difficulties underlying the large number of bank failures during recent years. For example, moderate one-year declines in profitability of the most profitable banks would not necessarily indicate significant difficulty for the banking system. On the other hand, if the least profitable banks have suffered reduced profitability, there is cause to suspect continuing problems.

One way to analyze the distribution of bank profitability within a given asset-size category is to rank all banks in that category in ascending order of profitability, divide the group into quartiles, and describe the profitability of the most profitable bank in each quartile. For example, the banks with the best ROA in the first (lowest) quartile would be those at the 25th percentile; that is, 25 percent of the banks in a particular size category are less profitable than the bank at the 25th percentile. Comparing the profitability of the bank at the 25th percentile over time would indicate the degree to which the least profitable banks in that asset category are experiencing improvement or deterioration in earnings. Likewise, comparing the ROA for the

banks at the 75th percentile over time would indicate changes in the earnings of the more profitable banks in that size category. (A 75th-percentile bank would be more profitable than 75 percent of the banks in its size category.) A rise in profitability over time at the various percentiles suggests improved conditions; downward movements indicate deterioration. Tables 21 through 26 present the profitability distribution for each of the six asset-size categories during the past five years.

Last year the ROA of all three profitability percentiles of banks in all size classes except the largest improved. For the least profitable banks in each class under \$500 million in assets, 1989 was the third consecutive year of improvement. ROA has improved during at least the last two years for both the median bank and the 75th-percentile banks in each size class but the largest.

In each of the last three years, the greatest profitability improvement has occurred among the least profitable banks. Last year's moderate ROA gain for the nation's lowest-quartile smallest banks is a welcome improvement over the anemic or negative returns recorded by these banks for the previous four years. As in 1988, perhaps some, but by no means all, of last year's improvement in small bank profitability can be ascribed to the fact that a number of the least profitable small banks in the United States discontinued operations. Close to one-half of the failed banks in recent years had assets under \$25 million. In the other two quartiles for the smallest banks ROA has been much more stable.

ROA of the largest banks declined along with their overall profitability, which was relat-

ed to loan loss, in 1989. In their case the poor got poorer, as banks with the lowest ROA lost about one-fourth of their return on assets while more profitable \$1 billion-plus banks' ROA declined less than 5 percent.

Conclusion

The nations' largest banks suffered profitability declines in 1989 as they doubled their provisions for loan losses from 1988 additions. Except for the largest, however, banks' 1989 profitability continued a slow recovery from 1986 lows. The least profitable banks continued to recover most, while the most profitable maintained or modestly improved their returns. Despite ongoing recovery and the failure of many of the worst performers in their size class, though, the smallest banks—those with assets of less than \$25 million—continued to record ROAs and ROEs that were well below those of their larger counterparts. Higher operating expenses per dollar of assets accounted for the gap in 1989.

Except for some banks' high or increasing loan losses, concentrated in Louisiana and to a lesser degree in Florida and Tennessee, southeastern banks followed the national pattern closely. Larger banks in the region suffered less from loan losses. Louisiana banks generally did not perform as well as banks in other regional states, continuing a pattern established in the early 1980s, and troubles surfaced at Florida banks with assets of \$500 million to \$1 billion.

Appendix

Profitability Measures

Three different measures have been used to provide information on bank performance: adjusted net interest margin, return on assets, and return on equity. Adjusted net interest margin gauges the difference between a bank's interest

income and expenses and is roughly similar to a business's gross profit margin. *Gross profit* is the amount received from sales minus the cost of goods or services sold; other expenses such as sales, advertising, salaries, and rent have not been deducted. For banks, this indicator is calculated by subtracting interest expense from

tax-adjusted interest revenue (net of loan-loss provisions) and dividing that result by net interest-earning assets. For this calculation, interest revenue from tax-exempt securities is adjusted upward by the bank's marginal tax rate to avoid penalizing institutions that hold substantial state and local securities portfolios, which reduce tax burdens.

Loan-loss expenses are subtracted from interest revenue to place banks that make lower-risk loans at lower interest rates on a more equal footing with commercial banks that make higher-risk loans, which can generate greater interest income. For example, interest rates on credit cards have been substantially higher than rates on prime commercial loans, but loan losses on credit cards have also been larger. Loan losses on credit cards were 3.1 percent of total credit card volume in 1988 for the nation's top 100 banks in credit card operations, according to "Top 100 Banks in Credit Card Operations."

Banks also bring in noninterest revenue in the form of loan origination fees; deposit service charges; charges for letters of credit, loan commitments, and other off-balance-sheet services; and gains from the sale of securities, to name a few. In addition, they incur noninterest expenses such as expenditures on employee salaries, computer equipment, and maintenance. Therefore, Bank X with a comparatively low adjusted interest margin may achieve a higher return on assets than Bank Y, which attained a larger margin. That is, Bank X may record a higher return on assets by realizing higher noninterest revenues or lower noninterest expenses.

The return on assets (ROA) ratio—the result of dividing a bank's net income by its average assets—gauges how well a bank's management is using the firm's assets. The return on equity (ROE) figure tells a bank's shareholders how much the institution is earning on the book value of their investments. ROE is calculated by dividing a bank's net income by its total equity. The ratio of ROA to ROE falls as the bank's capital-to-assets ratio rises. Smaller banks typically have higher capital-to-asset ratios.

Analysts who want to compare profitability while ignoring differences in equity capital ratios tend to focus on ROA. People wishing to

focus on returns to shareholders look at ROE. Highly capitalized banks that post the same return on assets as less well capitalized competitors will record a lower return on equity. Since return on equity is computed by dividing a bank's net income by its equity capital, a bank's return on equity will decline as its equity capital increases, assuming net income remains fixed.

Profitability Data and Calculations

The data in this article are taken from reports of condition and income filed with federal bank regulators by insured commercial banks. The sample consists of all banks that had the same identification number at the beginning and end of each year. The number of banks in the 1989 national sample is 12,493.

The three profitability measures used in this study are defined as follows:

Adjusted Net Interest Margin =

$$\frac{\text{Expected Interest Revenues} - \text{Interest Expense}}{\text{Average Interest-Earning Assets}}$$

Return on Assets =

$$\frac{\text{Net Income}}{\text{Average Consolidated Assets}}$$

Return on Equity =

$$\frac{\text{Net Income}}{\text{Average Equity Capital}}$$

Average interest-earning assets and average equity capital are derived by averaging beginning-, middle-, and end-of-year balance sheet figures. The expected interest income component to net interest margin incorporates two significant adjustments from ordinary interest income. If profits before tax are greater than zero, the lesser of revenue from state and local securities exempt from federal tax or the bank's profits before tax is divided by 1 minus the bank's marginal federal tax rate. Loan-loss expenses are subtracted from interest revenue.

Table 1.
Adjusted Net Interest Margin as a Percentage of Interest-Earning Assets
(Insured commercial banks by consolidated assets)

Year	All Banks	0-\$25 million	\$25-\$50 million	\$50-\$100 million	\$100-\$500 million	\$500 million-\$1 billion	\$1 billion+
1985	3.57	3.77	3.78	3.77	4.31	4.22	3.30
1986	3.34	3.54	3.74	3.90	3.93	3.98	3.06
1987	2.71	3.82	3.95	4.12	4.21	3.91	2.03
1988	3.75	4.05	4.17	4.27	4.29	4.00	3.54
1989	3.13	4.20	4.24	4.24	4.27	4.05	2.65

Source: Figures in all tables have been computed by the Federal Reserve Bank of Atlanta from data in "Consolidated Reports of Condition for Insured Commercial Banks" and "Consolidated Reports of Income for Insured Commercial Banks," 1985-1989, filed with each bank's respective regulator.

Table 2.
Tax-Equivalent Interest Earnings as a Percentage of Interest-Earning Assets and Total Revenue
(Insured commercial banks with over \$1 billion in assets)

Year	Tax-Equivalent Interest Earnings as Percent of Interest-Earning Assets	Tax-Equivalent Interest Earnings as Percent of Total Revenue
1980	14.45	92.6
1981	17.04	93.1
1982	15.25	91.9
1983	12.38	89.0
1984	12.85	89.7
1985	11.33	87.1
1986	9.93	83.9
1987	9.83	83.0
1988	10.83	84.0
1989	11.89	84.6

Table 3.
Tax-Equivalent Interest Revenue as a Percentage of Interest-Earning Assets
(Insured commercial banks by consolidated assets)

Year	All Banks	0-\$25 million	\$25-\$50 million	\$50-\$100 million	\$100-\$500 million	\$500 million-\$1 billion	\$1 billion+
1985	11.41	11.80	11.57	11.39	11.58	11.59	11.33
1986	10.18	10.78	10.74	10.69	10.53	10.73	9.93
1987	9.90	9.95	10.00	10.00	10.06	10.04	9.83
1988	10.66	10.13	10.19	10.25	10.36	10.46	10.83
1989	11.59	10.68	10.78	10.76	11.01	11.15	11.89

Table 4.
Loan-Loss Expense as a Percentage of Interest-Earning Assets
(Insured commercial banks by consolidated assets)

Year	All Banks	0-\$25 million	\$25-\$50 million	\$50-\$100 million	\$100-\$500 million	\$500 million-\$1 billion	\$1 billion+
1985	.79	1.25	1.00	.93	.70	.80	.76
1986	.92	1.33	1.10	.96	.90	1.02	.88
1987	1.48	.94	.82	.68	.69	.90	1.84
1988	.64	.72	.63	.56	.58	.79	.65
1989	1.08	.57	.53	.48	.56	.68	1.30

Table 5.
Interest Expense as a Percentage of Interest-Earning Assets
(Insured commercial banks by consolidated assets)

Year	All Banks	0-\$25 million	\$25-\$50 million	\$50-\$100 million	\$100-\$500 million	\$500 million-\$1 billion	\$1 billion+
1985	7.04	6.79	6.79	6.69	6.57	6.57	7.26
1986	5.92	5.90	5.91	5.83	5.70	5.73	5.99
1987	5.71	5.19	5.23	5.19	5.16	5.23	5.96
1988	6.27	5.36	5.39	5.42	5.48	5.67	6.63
1989	7.38	5.91	6.01	6.04	6.18	6.42	7.93

Table 6.
Percentage Return on Assets
(Insured commercial banks by consolidated assets)

Year	All Banks	0-\$25 million	\$25-\$50 million	\$50-\$100 million	\$100-\$500 million	\$500 million-\$1 billion	\$1 billion+
1985	.70	.36	.69	.75	.87	.72	.67
1986	.63	.09	.46	.62	.68	.61	.65
1987	.10	.26	.46	.66	.75	.51	-.15
1988	.84	.37	.62	.78	.81	.58	.89
1989	.52	.63	.77	.91	.94	.91	.37

Table 7.
Percentage Return on Equity
(Insured commercial banks by consolidated assets)

Year	All Banks	0-\$25 million	\$25-\$50 million	\$50-\$100 million	\$100-\$500 million	\$500 million-\$1 billion	\$1 billion+
1985	11.31	3.67	8.00	9.30	11.96	10.29	12.53
1986	10.10	.91	5.34	7.72	9.43	9.00	11.84
1987	1.63	2.75	5.39	8.02	10.08	7.51	-2.80
1988	13.56	3.88	7.03	9.24	10.66	8.70	16.47
1989	8.21	6.45	8.52	10.43	12.15	13.10	6.49

Table 8.
Total Noninterest Expenses as a Percentage of Total Assets
(Insured commercial banks by consolidated assets)

Year	All Banks	0-\$25 million	\$25-\$50 million	\$50-\$100 million	\$100-\$500 million	\$500 million-\$1 billion	\$1 billion+
1985	3.5	3.7	3.2	3.2	3.2	3.4	3.6
1986	3.5	3.7	3.3	3.2	3.2	3.4	3.6
1987	3.7	3.8	3.3	3.2	3.2	3.4	4.0
1988	3.7	3.8	3.3	3.2	3.2	3.4	3.9
1989	3.7	3.8	3.3	3.2	3.2	3.2	3.9

Table 9.
Adjusted Net Interest Margin as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by consolidated assets)

Year	All SE Banks	0-\$25 million	\$25-\$50 million	\$50-\$100 million	\$100-\$500 million	\$500 million-\$1 billion	\$1 billion+
1985	4.42	4.47	4.21	3.95	4.65	3.91	4.56
1986	4.25	4.19	4.19	4.25	4.25	3.88	4.32
1987	4.28	4.20	4.29	4.42	4.54	3.69	4.23
1988	4.34	4.30	4.26	4.36	4.45	4.18	4.33
1989	3.81	4.16	4.30	4.18	4.23	3.48	3.60

Table 10.
Tax-Equivalent Interest Revenue as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by consolidated assets)

Year	All SE Banks	0-\$25 million	\$25-\$50 million	\$50-\$100 million	\$100-\$500 million	\$500 million-\$1 billion	\$1 billion+
1985	11.74	12.04	11.86	11.64	11.86	11.90	11.63
1986	10.74	11.16	11.12	11.05	10.89	10.94	10.51
1987	10.28	10.35	10.43	10.33	10.30	10.12	10.26
1988	10.64	10.54	10.59	10.53	10.50	10.50	10.73
1989	11.06	11.18	11.21	11.00	10.99	10.97	11.09

Table 11.
Loan-Loss Expense as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by consolidated assets)

Year	All SE Banks	0-\$25 million	\$25-\$50 million	\$50-\$100 million	\$100-\$500 million	\$500 million-\$1 billion	\$1 billion+
1985	.75	.90	.87	.96	.71	1.16	.60
1986	.86	1.13	1.02	.92	1.00	1.24	.70
1987	.80	.98	.88	.69	.68	1.22	.80
1988	.64	.71	.69	.57	.60	.56	.66
1989	.78	.79	.58	.51	.57	.96	.88

Table 12.
Interest Expense as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by consolidated assets)

Year	All SE Banks	0-\$25 million	\$25-\$50 million	\$50-\$100 million	\$100-\$500 million	\$500 million-\$1 billion	\$1 billion+
1985	6.56	6.67	6.78	6.73	6.50	6.83	6.46
1986	5.63	5.84	5.90	5.89	5.64	5.81	5.49
1987	5.20	5.18	5.26	5.22	5.09	5.21	5.23
1988	5.66	5.53	5.59	5.60	5.45	5.76	5.73
1989	6.48	6.23	6.34	6.32	6.18	6.53	6.61

Table 13.
Percentage Return on Assets
(Insured commercial banks in the Southeast by consolidated assets)

Year	All SE Banks	0-\$25 million	\$25-\$50 million	\$50-\$100 million	\$100-\$500 million	\$500 million-\$1 billion	\$1 billion+
1985	.91	.75	.90	.80	.98	.50	.99
1986	.82	.33	.63	.74	.74	.55	.94
1987	.78	.31	.52	.73	.80	.45	.86
1988	.82	.30	.51	.82	.81	.86	.87
1989	.69	.28	.68	.90	.90	.55	.62

Table 14.
Percentage Return on Equity
(Insured commercial banks in the Southeast by consolidated assets)

Year	All SE Banks	0-\$25 million	\$25-\$50 million	\$50-\$100 million	\$100-\$500 million	\$500 million-\$1 billion	\$1 billion+
1985	13.09	7.27	10.00	9.70	13.31	7.64	16.74
1986	11.87	3.25	7.01	8.83	10.00	8.68	15.78
1987	11.18	2.82	5.70	8.61	10.56	6.90	13.99
1988	11.65	2.78	5.49	9.45	10.58	12.85	13.69
1989	9.71	2.46	7.15	10.13	11.43	8.28	9.81

Table 15.
Adjusted Net Interest Margin as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by state)

Year	All SE Banks	Alabama	Florida	Georgia	Louisiana	Mississippi	Tennessee
1985	4.42	4.71	4.61	5.03	3.51	4.26	4.10
1986	4.25	4.72	4.56	4.75	2.47	4.15	4.36
1987	4.28	4.50	4.30	4.98	3.04	4.35	4.21
1988	4.34	4.47	4.36	4.98	3.43	4.28	4.11
1989	3.81	3.92	3.79	4.60	2.81	3.84	3.48

Table 16.
Tax-Equivalent Interest Revenue as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by state)

Year	All SE Banks	Alabama	Florida	Georgia	Louisiana	Mississippi	Tennessee
1985	11.74	11.79	11.80	12.14	11.53	11.52	11.40
1986	10.74	10.83	10.78	11.01	10.39	10.51	10.69
1987	10.28	10.11	10.14	11.10	9.97	10.30	10.03
1988	10.64	10.61	10.40	11.27	10.63	10.36	10.62
1989	11.06	10.95	10.91	11.77	10.67	10.76	11.06

Table 17.
Loan-Loss Expense as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by state)

Year	All SE Banks	Alabama	Florida	Georgia	Louisiana	Mississippi	Tennessee
1985	.75	.60	.66	.57	1.36	.61	.71
1986	.86	.45	.68	.67	2.14	.67	.66
1987	.80	.45	.77	.72	1.61	.61	.64
1988	.64	.32	.59	.54	1.29	.46	.73
1989	.78	.41	.77	.59	1.44	.49	.95

Table 18.
Interest Expense as a Percentage of Interest-Earning Assets
(Insured commercial banks in the Southeast by state)

Year	All SE Banks	Alabama	Florida	Georgia	Louisiana	Mississippi	Tennessee
1985	6.56	6.48	6.53	6.54	6.67	6.65	6.59
1986	5.63	5.65	5.54	5.60	5.78	5.69	5.68
1987	5.20	5.16	5.06	5.39	5.32	5.34	5.18
1988	5.66	5.82	5.45	5.75	5.91	5.67	5.77
1989	6.48	6.62	6.35	6.58	6.42	6.44	6.63

Table 19.
Percentage Return on Assets
(Insured commercial banks in the Southeast by state)

Year	All SE Banks	Alabama	Florida	Georgia	Louisiana	Mississippi	Tennessee
1985	.91	1.20	.86	1.20	.38	1.03	.95
1986	.82	1.22	.87	1.09	-.22	1.00	.98
1987	.78	1.08	.75	1.13	-.07	.88	.89
1988	.82	1.16	.78	1.15	.03	.85	.84
1989	.69	1.01	.62	1.12	-.09	.81	.61

Table 20.
Percentage Return on Equity
(Insured commercial banks in the Southeast by state)

Year	All SE Banks	Alabama	Florida	Georgia	Louisiana	Mississippi	Tennessee
1985	13.09	14.95	13.68	18.38	4.73	14.14	13.85
1986	11.87	15.15	14.21	16.41	-2.91	13.50	13.74
1987	11.18	13.27	12.06	16.02	-.93	11.49	12.33
1988	11.65	14.38	12.21	15.77	.44	10.92	11.55
1989	9.71	12.55	9.65	14.64	-1.25	10.22	8.39

Table 21.
Percentage Return on Assets
(Insured commercial banks with assets below \$25 million)

Year	Percentile According to Profitability		
	75%	50%	25%
1985	1.29	.82	.07
1986	1.12	.65	-.26
1987	1.09	.67	-.03
1988	1.14	.78	.20
1989	1.20	.85	.39

Table 22.
Percentage Return on Assets
(Insured commercial banks with assets of \$25 million to \$50 million)

Year	Percentile According to Profitability		
	75%	50%	25%
1985	1.34	.97	.50
1986	1.23	.83	.29
1987	1.18	.84	.35
1988	1.24	.93	.53
1989	1.30	1.00	.60

Table 23.
Percentage Return on Assets
(Insured commercial banks with assets of \$50 million to \$100 million)

Year	Percentile According to Profitability		
	75%	50%	25%
1985	1.34	1.02	.60
1986	1.28	.94	.45
1987	1.25	.92	.52
1988	1.28	.98	.65
1989	1.34	1.04	.71

Table 24.
Percentage Return on Assets
(Insured commercial banks with assets of \$100 million to \$500 million)

Year	Percentile According to Profitability		
	75%	50%	25%
1985	1.32	1.03	.74
1986	1.27	.97	.57
1987	1.25	.97	.60
1988	1.33	1.04	.72
1989	1.37	1.08	.78

Table 25.
Percentage Return on Assets
(Insured commercial banks with assets of \$500 million to \$1 billion)

Year	Percentile According to Profitability		
	75%	50%	25%
1985	1.19	.92	.65
1986	1.19	.92	.55
1987	1.20	.94	.47
1988	1.29	.99	.57
1989	1.32	1.07	.66

Table 26.
Percentage Return on Assets
(Insured commercial banks with assets over \$1 billion)

Year	Percentile According to Profitability		
	75%	50%	25%
1985	1.11	.89	.59
1986	1.11	.90	.60
1987	1.08	.86	.30
1988	1.21	1.02	.72
1989	1.20	.97	.52

Notes

¹Six size categories of commercial banks are analyzed in this study. They are (1) banks with total assets under \$25 million, (2) banks with total assets of at least \$25 million and less than \$50 million, (3) banks with total assets of at least \$50 million and less than \$100 million, (4) banks with total assets of at least \$100 million and less than \$500 million, (5) banks with total assets of at least \$500 million and less than \$1 billion, and (6) banks with total assets of at least \$1 billion.

De novo banks are not included in this study. The ratios displayed are full-year profitability figures based on beginning-, middle-, and end-of-year balance sheets and income statements. Banks that commence operations during any particular year will be missing, at a minimum, beginning-of-year data. Commercial banks with assets under \$50 million accounted for 54.4 percent (6,790) of the total number of banks nationwide (12,493) that were included in the 1989 sample, but only 5.3 percent of U.S. banks' total assets.

²In this study the Southeast refers to the six states that are entirely or partially within the Sixth Federal Reserve District: Alabama, Florida, Georgia, Louisiana, Mississippi, and Tennessee.

See Wall (1983) for a review of southeastern banks' returns on assets and equity for the 1972-82 period.

³The revenue, expense, and profitability figures presented are generally similar to those displayed in prior bank profitability studies published in the *Economic Review* (see Goudreau and Whitehead for the most recent study). The figures are not identical because reporting errors by banks are continually being found and corrected.

Additionally, the interest revenue as a percentage of interest-earning assets ratio and adjusted net interest margins may differ from figures reported in previous studies because of corrections in the treatment of tax-exempt interest income.

⁴Size categories 1 through 6 last year contained 304, 489, 400, 326, 33, and 47 southeastern banking institutions, respectively. That is, the number of regional banks with total assets between \$500 million and \$1 billion equaled 33 in 1989 compared with a total of 47 southeastern banks with assets of at least \$1 billion. The number of institutions in each of the remaining size classifications was much higher.

The uneven performance of southeastern banks in this \$500 million-to-\$1 billion asset category can be traced to acquisition and merger activity, a broad profitability improvement in 1988, and a discernible clustering of poorly performing larger regional banks in 1989. Numerous institutions within this size category experienced declining profits in 1985, 1986, and 1987. A number of these inadequately performing banks, most of which were located in Louisiana and Florida, eventually were acquired by or merged into larger, more profitable entities. The banks that remained in this asset class generally reported improved profitability in 1988. Although a majority of southeastern banks in the \$500 million-to-\$1 billion size class registered respectable earnings in 1989, below-standard profit performance by some of the \$500 million-to-\$1 billion banks again held down last year's average profit ratios for this category of southeastern bank.

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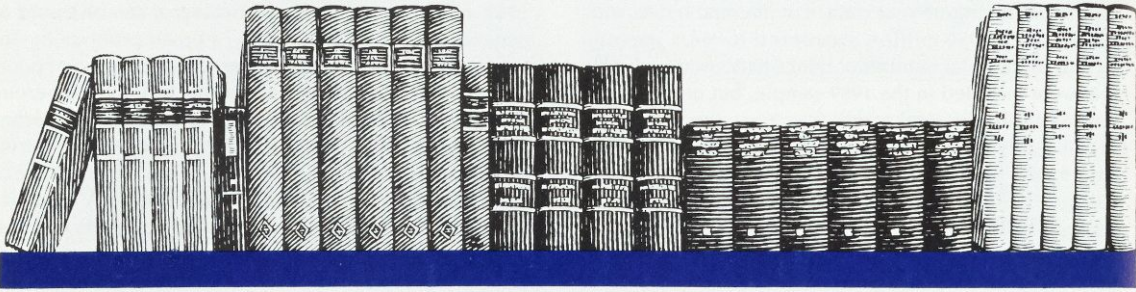
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Book Review

Presidential Economics: The Making of Economic Policy from Roosevelt to Reagan and Beyond, 2d revised edition.

by Herbert Stein.

Washington, D.C.: American Enterprise Institute for Public Policy Research, 1988.
450 pages. \$12.75.



Public discussion of economic policy is bedeviled by the failure to distinguish between questions of logic (whether or not the federal deficit *must* fall, for example), forecasts (whether or not the deficit *will* fall or, similarly, the likelihood of the deficit's being cut), and policy recommendations (how to cut the deficit). Herbert Stein has spent his career illuminating these distinctions. In the midst of the debate over the trade deficit, for instance, with just a few words he was able to clarify the discussion on the feasibility of large trade deficits where so many other analyses had failed: "Does anyone know an optimum rate of the trade deficit other than what emerges in the market? I think not. Certainly the optimum rate is not zero. A cliché of these days is that a trade deficit of the present size cannot go on forever. This is not axiomatically true, but it is probably true. That does not, however, give any guidance. . . . [I]f something cannot go on forever, it will stop."¹

Stein, A. Willis Robertson Professor of Economics Emeritus at the University of Virginia and former Chairman of the President's Council of Economic Advisors, is an acknowledged virtuoso at focusing attention on the

heart of economic issues, cutting away the political and cultural baggage and other effluvia that encumber policy debate. His most recent book, *Presidential Economics*, is an extended exercise in clarification and debunking. Subtitled *The Making of Economic Policy from Roosevelt to Reagan and Beyond*, the book traces the policymaking process from theory to formulation, implementation, outcome, and evaluation. The narrative, which begins in the 1920s, establishes a historical basis for examining the economic policies of the Reagan administrations, especially the tax cuts early in the first term. Stein's description and evaluation of different schools of thought and received (or discarded) theory during earlier administrations sets up the discussion of the Reagan years.

Stein's review of the record reveals a good deal of continuity in U.S. economic policymaking, albeit more in terms of process (the making) than of ideas (the policy). He makes this distinction early on in *Presidential Economics*. In the United States a history of rising living standards, along with faith in technological and social progress, has encouraged the belief that there is a unique, correct policy solution to every problem—ranging from

poverty and low productivity growth to environmental degradation and inflation.

When the electorate perceives that current policy is "not working," according to criteria that may be arbitrary, it creates support for change, but it rarely identifies an alternative policy. This sequence has occurred repeatedly in the United States. The initial support for Presidents Roosevelt, Kennedy, Nixon, Carter, and Reagan was more a rejection of then-standard economic policies than a sentient embrace of a specific alternative program.

Recognizing this pattern, Stein discusses criteria for judging both the success of economic policy and the validity of standard economic theory. Stein observes a bias in the United States toward accepting the efficacy of current policy: any economic conditions that are not inconsistent with a policy's expected successful outcome are typically viewed as evidence of the policy's effectiveness. As long as general circumstances are acceptable (for example, inflation is low and employment growth is strong), the burden of proof is on competing policies. If conditions are not good, or not good enough, this state of affairs is blamed on current policy, and the public bias shifts to embrace an alternative, even if unproven, policy.

Unfortunately, the real world is a poor laboratory for evaluating economic policy because it is difficult to distinguish the effects of policy from the impact of myriad other influences. For this reason Stein suggests that all economic policy is experimental. Economic theory may suggest appropriate policy in the sense that it is not ill-equipped to guide policy, but theory customarily focuses on the relationship among only a few variables, not hundreds. The risk is that one or many of the unspecified variables may behave in a way that subverts the "surface" variables' relationship.

Considering his views, then, Stein is not being dismissive when he describes President Franklin Roosevelt's fiscal policy as extemporized. Each succeeding president has faced the same challenges that confronted his predecessors and contemporary policymakers: How can one tell if policy is working, and when does one decide if it is not effective? Does the policy's failure yield any information

about which policy might work next time? That is, does the experience lead to a revision of belief about the way the world works?

As an example of how difficult such distinctions may be to judge, Stern cites the case of personal income tax cuts. In recent history there have been two personal tax cut programs. The reasoning supporting each tax cut was entirely different, and the means by which each was expected to stimulate gross national product (GNP) were mutually exclusive. The evidence, however, which suggests that each program was successful, is consistent with both theories. Because there is not enough information to distinguish clearly between the effects of the two policies, the available data are not sufficient to support one to the exclusion of the other. In other words, the data do not allow a rigorous test of the underlying truth.

Recent history's best example of this observational equivalence is the tax cuts during the administrations of Presidents Kennedy and Reagan. Before each tax reduction was passed, its proponents contended that the cut would "raise national income, increase income growth, boost total output and reduce the unemployment rate." In the early 1960s economists supporting a tax cut had one predominant view of how the tax cut worked. Lower taxes would yield higher after-tax income for any level of gross income. Higher incomes would boost spending by households and businesses; this increased spending would raise resource use (employment and factory utilization) at existing price levels because the economy was then operating at less than full employment. As a consequence, additional resources could be employed without bidding up prices. Although few disputed that the higher level of activity might broaden the tax base so as to offset the loss to the Treasury related to the tax rate cut, Stein emphasizes that this contention was not central to the policy.

During the 1980 presidential campaign it was argued that a tax cut would stimulate more activity and quickly replace revenue, but this result was attributed to a different channel of influence than that acknowledged a generation before. This supply-side view, like the 1960s policy, assumed the existence

of unemployed resources. However, these resources reputedly were idle not because of inadequate demand but because the after-tax return to working or investing was insufficient incentive. Reducing tax rates, especially at the margin, would raise the after-tax return to labor and capital and so elicit a greater supply of resources. In this way total output and incomes would be raised by a tax cut. Several additional tenets characterized the supply-side view of the early 1980s, most notably that a tax cut would enlarge the tax base by so much and so quickly that the cut actually would raise total revenue and lower the federal budget deficit.

The designers of the 1964 tax cut did not exclude supply-side effects from their scenario, but their support was not based on these impacts, which were judged to be of secondary importance and discernible only over the longer run. The lion's share of the tax cut effect (and all the immediate impact) was expected to come from increased expenditures.

In the wake of both tax cut programs, total spending and total output rose and the unemployment rate fell. The economy expanded from 1961 to 1966, and an even longer and still-continuing expansion started in late 1982. Each tax cut was deemed a success from the point of view of macroeconomic performance, although the tax revenue effects were less clear. Stein stresses that given the numerous other events during the years surrounding these tax cuts, many questions about the connection between economic policies and economic performance remain mysteries. In fact, a good deal of the analysis of these tax cuts' impact is speculative, which is not to say uninformed.

In the mid-1960s the growth rate of the money supply accelerated, providing monetary as well as fiscal policy stimulus as the tax cut came on line. These policy changes were not synchronous. However, the timing, lags in impacts, and channels of influence of the policies were not so precise as to allow one to disentangle their separate effects. Similarly, the tax cuts of the early 1980s were enacted at a time when financial market innovation and deregulation made it difficult to gauge the exact stance of monetary policy. Starting

around 1982, moreover, the rise in the dollar's exchange value slowed inflation. What influences were responsible for the lower inflation and economic rebound in the 1980s? The point Stein makes so convincingly is that it is rarely possible to distinguish the net individual contributions of various economic policies from each other, let alone from the uncountable small and large forces acting on the economy at every moment.

Conceding the foregoing points is not to argue that one cannot distinguish good policy from bad before it is implemented. Stein's prescription for discerning appropriate measures is a broad approach, not a specific agenda. (Unfortunately, the fact that it is also based on common sense suggests that its probability of adoption is rather low, given Stein's de-

"[I]t is rarely possible to distinguish the net individual contributions of various economic policies from each other, let alone from the uncountable small and large forces acting on the economy at every moment."

prediction of U.S. policymakers' and the public's bias toward improbable schemes.) "The important thing is to find policies that have a reasonable chance of improving the performance of the economy and also of being acceptable to a sufficient range of interests and opinions. . . . It is not sufficient or even very helpful to lay out 'ideal' programs as if their ideal character could be objectively demonstrated and as if their implementation could be confidently expected once they had been promulgated." Repeatedly, Stein exposes the importance of separating both sentiment and forecasts from logic. Many economic policies have been oversold by a failure to make those distinctions. Inevitably, such policies are judged to be disappointments or failures because a dispassionate assessment was never provided.

The challenge of achieving continued economic growth in the United States is an issue that Stein addresses throughout the book, since most new presidential administrations enter office with a plan to improve economic performance. Stein concludes his discussion of the Ford-Carter stagflation years by distinguishing between policies focused on the short run, which usually define the challenge of improving economic performance as raising actual output to potential, from policies focused on the longer run, which address the task of raising potential. This issue can be defined in terms of growth versus development.

If the longer run is no more than a succession of short runs, there is nothing wrong with policies designed to ensure better short-run performance. However, the experience of the

“The initial success of some short-run policies tempted policymakers to repeat them. Given the brief history of active countercyclical economic policy, there were few reasons to expect that short-term policies could not work indefinitely.”

1970s showed that trade-offs such as those between employment and inflation which may exist over the short term are neither exploitable nor stable over longer periods. In fact, some short-run policies may damage the economy's ability to achieve better results in the long run. Policies designed to support the unemployed, for example, may have disincentive effects that make the labor force less mobile and more prone to extended periods of unemployment. Similarly, while policy stimulus might lower unemployment at the cost of more rapid increases in prices, accelerating inflation has been required to keep unemployment lower. Clearly, this situation too is untenable over the longer term.

The initial success of some short-run policies tempted policymakers to repeat them. Given the brief history of active countercyclical

economic policy, there were few reasons to expect that short-term policies could not work indefinitely. The long term was seldom considered, and, when it was, it was not considered to be different in nature from the short run.

Disappointment with the failure of short-run policies led to some very sobering benefit/cost analysis. Stein suggests that ex post analysis of these policies is always less biased than ex ante assessments. He argues that ex ante evaluations are flawed because benefits are seen as direct and measurable, while the costs are regarded as indirect, or at least diffuse. This view leads to a tendency toward overestimating benefits and underestimating costs and so toward excess government spending and regulatory programs. However, Stein does not distinguish immediate and long-run costs and benefits. For many programs like HeadStart, benefits are slow, indirect, and cumulative, whereas costs are immediate, direct, and recurring. Still, he stresses that the disincentive effects on some income maintenance programs cannot be ignored when evaluating economic policies of the 1960s and 1970s.

In his afterword, Stein assesses both monetary and fiscal policy in recent years. He faults monetary policy for the inflation of the 1970s and early 1980s. However, this conclusion gives monetary policy more influence than it can claim. High real interest rates, stagnant productivity growth, a stifling regulatory structure, a large trade deficit, and intransigent inflation are all symptoms of a bad policy mix. Monetary policy alone cannot be so destructive. Interestingly, monetary policy embraced a longer-run focus (in late 1979) when fiscal policy lost such a perspective.

On the experience of recent fiscal policy, Stein concludes: “Probably the outstanding lesson of the episode [federal budget deficits over \$200 billion] was that the U.S. did not have any fiscal policy.” Stein defines fiscal policy as that “which determines an appropriate size for the deficit or surplus to which decisions about expenditures and revenues are then adapted.” He continues, “The distinctive feature of a fiscal policy is that there is a rule or principle which determines the size of the deficit or surplus first and which requires ex-

penditures and revenues to conform to that." The Gramm-Rudman requirements proved to be insufficiently punitive to force fiscal policy into shape. Stein fails to recognize that in such a setting it was impossible for monetary policy to compensate for fiscal policy's flaws. By in effect absolving fiscal policy of any responsibility for economic conditions, he shifts the entire load to monetary policy. If evaluated on this basis, monetary policy will always be found wanting.

Presidential Economics is powerfully persuasive in its arguments for better policymaking, providing as it does a rich history of successes and pitfalls. Essentially, Stein's advice emphasizes consensus and pragmatism over ideology. The United States has a mixed economy in which few markets are completely un-

regulated and few are entirely regulated. In this setting, policies based on extremes are unlikely to promote the general welfare. Stein argues that pragmatism does not indicate the failure of ideology but rather a familiarity with the facts; it is not so much a compromise between opposing ideals as it is an ideal in its own right. As such, it requires no apology.

Mary Susan Rosenbaum

The reviewer is research officer in charge of the macropolicy section of the Atlanta Fed's research department.

Note

¹ Herbert Stein, "Leave the Trade Deficit Alone," *Wall Street Journal*, March 11, 1987.

In Memoriam

J. Edward Rooks

For his contributions as a graphic designer and typesetter
to the *Economic Review* and other publications of the
Federal Reserve Bank of Atlanta

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