FEDERAL RESERVE BANK OF NEW YORK

MONTHLY REVIEW

SEPTEMBER 1974

Contents

Volume 56 **No. 9**

Treasury and Federal Reserve Foreign Exchange Operations*

By CHARLES A. COOMBS

Over the six-month period, February-July 1974, covered by this report, the exchange markets were buffeted by turbulent crosscurrents. Dollar rates against European currencies and the yen swung over a broad range in response to shifting market appraisals of the impact of the oil crisis and inflation on relative currency values, while episodes such as the Herstatt Bank failure also had major effects on market activity and sentiment.

At the beginning of the year the dollar was moving up strongly against some currencies to levels prevailing before the February 1973 devaluation. The market's bullish appraisal of the dollar mainly derived from the favorable trends in the United States payments balance that had emerged during 1973, and the judgment that this country could better cope with the damaging consequences of the oil crisis than most other industrial countries. Late in January, however, exchange market sentiment abruptly shifted against the dollar, with selling pressures continuing until mid-May.

This adverse shift of market sentiment coincided with the complete elimination of United States capital controls on January 29 and the subsequent easing of European barriers against capital inflows. Moreover, United States interest rates had already begun to fall sharply while rates abroad held firm, and this swing in interest rate differentials temporarily provided a further strong inducement to outflows of United States funds into foreign markets. Foreign demand for dollar credit mounted, as many countries rushed to launch medium-term borrowing programs to meet anticipated balance-of-payments deficits. As a result, claims on foreigners reported by United States banks ballooned by a record increase of well over $9 billion during the four months, February through May. Even more importantly, the energy crisis threatened to provoke a more rapid and pronounced deterioration in our trade balance than originally expected, while Germany showed a continuing trade surplus of surprising strength.

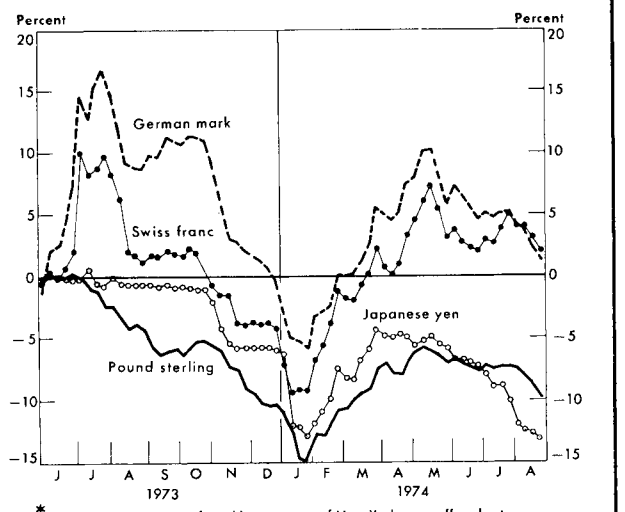
As this picture unfolded, dollar rates against most European currencies fell steadily during February to levels more than 10 percent below the January highs. Such recurrent declines in dollar rates threatened to generate speculative pressures and disorderly trading, and the Federal Reserve accordingly resumed intervention on February 22. By the month end, the Federal Reserve had sold $91.2 million equivalent of marks financed by drawings on the swap line with the German Bundesbank, of which $3.7 million was repaid with market purchases early in March. In addition, this Bank sold $6.8 million equivalent of Belgian francs from System balances, as well as some $8.9 million equivalent of German marks and $15.8 million equivalent of French francs from Treasury balances.

Meanwhile, the divergent trend between the United States weakening trade position and the continued strength of Germany's export surplus had kindled renewed speculation on a revaluation of the German mark. During March the Federal Reserve intervened intermittently but in sizable amounts to sell a further $225.5 million equivalent of German marks, financed by additional drawings on the swap line with the Bundesbank. These operations were conducted in close coordination with the Bundesbank, which also supplied marks on a substantial scale both by buying dollars outright and by intervening in the European Community (EC) "snake" arrangement. In other operations during March, this Bank sold $10 million equivalent

*This report, covering the period February through July 1974, is the twenty-fifth in a series of reports by the Senior Vice President in charge of the Foreign Function of the Federal Reserve Bank of New York and Special Manager, System Open Market Account. The Bank acts as agent for both the Treasury and Federal Reserve System in the conduct of foreign exchange operations.

Chart I

SELECTED EXCHANGE RATES *



*Percentage deviations of weekly averages of New York noon offered rates from New York noon offered rates on June 1, 1973.

speculation against the dollar. Reports of this agreement appeared on the news tickers on May 14 and immediately brought about a scramble to cover short dollar positions. By the following day, the German mark and Swiss franc rates against the dollar had fallen off by 4½ percent.

The subsequent recovery of the dollar during the late spring and summer months was solidly based on improving trends in the United States payments position. United States trade figures for April and again for June showed unexpected strength despite the burden of higher oil prices, while the German trade surplus leveled off and then declined. A pronounced tightening of credit conditions and sharply higher interest rates in New York also exerted a stronger pull on international capital funds, while United States bank lending abroad subsequently slackened. As the oil-producing countries progressively saturated the capacity of the major Euro-dollar banks to handle short-term placements, flows of Organization of Petroleum Exporting Countries (OPEC) funds into the United States credit markets grew in volume and revived earlier market anticipations that such investment flows would strengthen

of Belgian francs from System balances and $17.9 million equivalent of French francs from Treasury balances.

By April, interest rates in the United States had turned around and began to move upward sharply while rates abroad were on an easing trend, thereby progressively reversing earlier interest-arbitrage differentials adverse to the United States. Moreover, trade figures for March showed a more modest United States deficit than generally expected in the market and a slightly reduced surplus for Germany. Nevertheless, the market remained fearful of a possible revaluation of the German mark or disbanding of the EC snake. In addition, publication of first-quarter figures, showing a drop in United States output and a distressing acceleration of domestic inflation, prompted gloomy market reassessments of United States business and foreign trade prospects. Market sources also cited new disclosures in the Watergate affair as having a depressing effect on the dollar. As the dollar fell still further, the Federal Reserve continued to intervene and sold $51.6 million equivalent of marks in April, financed by further drawings under the swap line with the Bundesbank.

Speculative overtrading against the dollar continued until mid-May, at which point the dollar had fallen 21 percent below its January high against the mark. Against this background, Swiss, German, and United States officials attending the May meeting of the Bank for International Settlements (BIS) reached agreement on the desirability of concerted exchange market operations to counter excessive

Table I

FEDERAL RESERVE RECIPROCAL CURRENCY ARRANGEMENTS

In millions of dollars

Institution	Increases during the period (February 1 through July 31,1974)	Amount of facility July 31, 1974
Austrian National Bank		250
National Bank of Belgium		1,000
Bank of Canada		2,000
National Bank of Denmark		250
Bank of England	1,000*	3,000
Bank of France		2,000
German Federal Bank		2,000
Bank of Italy	1,000†	3,000
Bank of Japan		2,000
Bank of Mexico		180
Netherlands Bank		500
Bank of Norway		250
Bank of Sweden		300
Swiss National Bank		1,400
Bank for International Settlements: Swiss francs-dollars		600
Other authorized European currencies-dollars		1,250
Total	2,000	19,980

* Effective date March 26, 1974.
† Effective date February 1, 1974.

Table II

FEDERAL RESERVE SYSTEM DRAWINGS AND REPAYMENTS UNDER RECIPROCAL CURRENCY ARRANGEMENTS

In millions of dollars equivalent

Transactions with	System swap commitments, January 1, 1974	Drawings (+) or repayments (—)			System swap commitments, July 31, 1974
		1974			
		I	II	July	
National Bank of Belgium	261.8				261.8
German Federal Bank	—0—	+255.0 — 3.7	+130.4 —122.8	—194.2	64.6
Netherlands Bank	—0—			+ 2.3 — 2.3	—0—
Swiss National Bank	565.0	—193.8			371.2
Bank for International Settlements (Swiss francs)	600.0				600.0
Total	1,426.8	+255.0 —197.6	+130.4 —122.8	+ 2.3 —196.6	1,297.5

Note: Discrepancies in totals are due to rounding.

the dollar relative to other currencies unable to provide comparable investment facilities.

Early in June, the dollar experienced temporary selling pressure and the Federal Reserve made a further drawing of $17.1 million on the Bundesbank swap line, lifting total mark debt outstanding to a peak of $381.7 million. Thereafter, the Federal Reserve steadily accumulated mark balances, of which $122.8 million was used to reduce outstanding swap debt with the Bundesbank to $258.9 million equivalent. The dollar came under some selling pressure, however, following announcement on June 25 of a poor trade performance in May, and on the following day Bankhaus I. D. Herstatt was closed. As a stabilizing measure, the Federal Reserve sold $24.2 million of mark balances on June 28 and July 2.

For some time the market had become increasingly concerned over reports of large foreign exchange trading losses by banks in various countries. The main impact of the Herstatt closure, however, was to highlight the fact that even a spot exchange contract involved a credit risk in which a bank might accept payment on a currency trade but be forced to close its doors before delivering the foreign exchange counterpart. As bank management throughout the world focused on this risk, traders severely limited new transactions to only those names they considered of the highest quality. Initially, foreign exchange trading was further sharply curtailed as New York Clearing House banks sought to make payments for their correspondents only after assurance that covering receipts were in hand. As this proved unworkable, the Clearing House then modified its procedures to permit all participating banks to recall payments made provisionally in anticipation of receipt of funds. These new arrangements facilitated a considerable recovery in trading volume, although complaints over the recall feature continued to be voiced abroad. Over subsequent weeks, trading in the spot exchange market gradually recovered, but activity in the forward market remained subdued. A more lasting consequence of the Herstatt affair was to compound the trading difficulties faced by small- and medium-sized banks, not only in the foreign exchanges but also in the Euro-dollar market, as a worldwide review of bank credit lines resulted in a tightening of credit limits for all but the very best names.

In the thin and sensitive markets that appeared in the wake of Herstatt, central banks tended to move more quickly than usual to check sharp exchange rate movements. On July 15-17, the Federal Reserve sold from balances $7.5 million equivalent of marks and $4.4 million of Belgian francs to cushion declining dollar rates. Then, on July 24, a sudden rash of rumors of a guilder revaluation exerted speculative pressure on the dollar, which intensified following ticker reports of the Supreme Court decision on the Watergate tapes. The Federal Reserve intervened forcefully that day and sold a total of $43.8

million of marks from existing balances, together with $2.3 million of guilders financed by a drawing on the swap line with the Netherlands Bank. The dollar rate subsequently firmed up and gained increasing buoyancy with reports the next day of a reduction in the German trade surplus as well as an improved United States trade performance during June.

As the mark came on offer, the Federal Reserve again accumulated mark balances which were supplemented by a purchase of $132.3 million of marks from the Bank of Italy. These mark acquisitions enabled the System to repay $194.2 million of outstanding swap debt with the Bundesbank on July 31, leaving an outstanding commitment of $64.6 million equivalent. In addition, the System acquired sufficient guilders to liquidate on July 30 the $2.3 million drawing on the Netherlands Bank swap line.

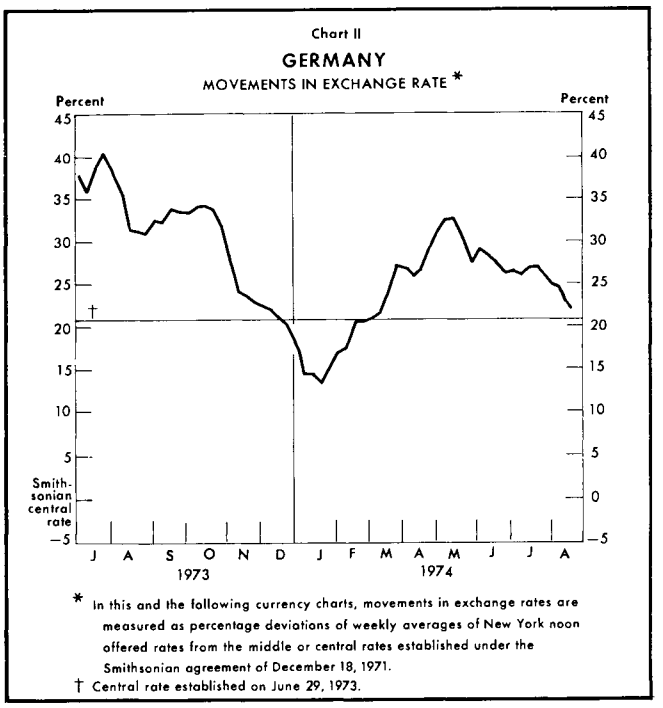
In summary, during the period under review the Federal Reserve intervened in support of the dollar to the extent of $527 million equivalent. Of this amount, $139.3 million represented drawings on Federal Reserve and Treasury balances. The remaining $387.7 million was financed by Federal Reserve drawings on its swap lines with the German Bundesbank and the Netherlands Bank.

GERMAN MARK

In late 1973, the German mark led the decline of European currencies against the dollar. By early 1974, however, the market began to view the previous rush into dollars as having been overdone. A sharp bulge in demand for German exports, on top of an already high level of foreign orders, had added another $1 billion a month to German exports, but the higher monthly cost of Germany's oil imports was estimated to be only half that amount. The market now expected, moreover, that the prospective sharp rise of the United States oil import bill would erode the recent surge back into surplus of the United States trade balance. Inflation in Germany was already leveling off just above 7 percent, while the rise in United States prices was continuing to accelerate. The market also anticipated that the Bundesbank would maintain its strongly restrictive monetary policy in an effort to reduce the inflation rate further. The interest rate disparity favoring Germany was widening at the time when United States controls on capital outflows were terminated on January 29. These developments, combined with a subsequent relaxation of German barriers to inflows, set the stage for a massive outpouring of funds from this country and reflows to Germany.

In late January and during February the German mark was bid up sharply against the dollar and EC currencies. The bidding for marks, with particularly heavy trading by a relatively small number of banks, unsettled the market and threatened to generate broader speculative pressures against the dollar. By February 22, the mark had advanced some 10 percent from its January lows and the Federal Reserve resumed intervention. The Desk was obliged to operate fairly forcefully on occasion to avoid the outbreak of disorderly conditions. By the month end, this Bank had sold a total of $100.1 million equivalent of marks, $91.2 million equivalent for the System financed by swap drawings on the Bundesbank and $8.9 million for the Treasury from balances. Early in March the Federal Reserve purchased $3.7 million equivalent of marks in the market and used them to repay part of the swap debt.

The rising German export surplus to almost $1¼ billion in January had sparked renewed debate in that country over exchange rate policy, and press commentary suggested that the German government would welcome a rise or even revaluation of the mark. Official denials from the Bundesbank helped clear the air, but market talk of even more massive trade surpluses for Germany and deficits for other major industrial countries, including the United States, generated further strong demand for marks. In late March, German and United States February trade figures—a $2 billion German surplus and a



much-reduced $200 million United States surplus—set off a new surge of the mark. To maintain orderly conditions, the Federal Reserve intervened repeatedly, occasionally in sizable amounts. For March as a whole, System mark sales amounted to $225.5 million equivalent, all financed by additional drawings on the swap arrangement with the Bundesbank. The Bundesbank also purchased dollars on several days in Frankfurt and, with the mark pinned to the top of the EC band, provided marks for intervention against currencies of its partners in the snake as well.

By early April, interest rates in the United States were clearly moving upward while rates in Germany had eased, thereby reversing the previously adverse interest rate differentials against the dollar. Federal Reserve determination to maintain a firm monetary policy and the need for a strong dollar in the struggle against inflation were underscored by the April 4 testimony of Chairman Burns to the Congress. These developments gave only a temporary respite to the rise in the mark exchange rate. Expectations about the dollar rate soon soured on publication of United States gross national product (GNP) figures for the first quarter, showing an unexpectedly severe drop in real output and an acceleration of domestic inflation to a rate well above Germany's. Exaggerated market expectations of a German trade surplus as high as DM 7 billion for March prior to release of the data in late April renewed the revaluation fever. Growing uncertainties surrounding the impeachment proceedings in Washington as well as new disclosures in the Watergate affair exerted a further depressing influence on the dollar.

Heavy speculative demand for marks reemerged just after mid-April, swamping the effect of further increases in United States interest rates including on April 25 a ½ percentage point increase to 8 percent in the Federal Reserve discount rate. By mid-May, the spot mark had been ratcheted up to $0.42, fully 21 percent above its January low and just 6 percent below the peak reached in July 1973. This upsurge had pulled all the major European currencies up to levels that many traders considered to be unsustainably high. The Federal Reserve continued to intervene to guard against disorderly conditions. In April, sales of marks drawn on the swap line totaled $51.6 million equivalent. In Frankfurt, the Bundesbank made additional dollar purchases and continued to intervene in the EC snake arrangement. In the three months through mid-May, Bundesbank intervention had contributed to a $2.3 billion increase in German reserves.

Despite such intervention, the market continued to verge on disorder. Accordingly, representatives of the Bundesbank, the Federal Reserve, and the Swiss National Bank agreed at the monthly BIS meeting in Basle, Switzerland, on a concerted plan of intervention in marks and Swiss francs to counter excessive speculation against the dollar. The Federal Reserve was prepared to operate forcefully in the New York market, drawing further on the swap line with the Bundesbank, while the Bundesbank and the Swiss National Bank were prepared to buy dollars in their own markets. Reports of this agreement reached the news services on May 14 and had an electrifying effect on dollar trading. Dealers holding long mark and short dollar positions scrambled for cover. In twenty-four hours the mark rate plummeted nearly 4½ percent. As conditions in the exchanges settled down, dealers began to respond to the interest incentive favoring the dollar, and the mark's decline continued through the month end. As the mark declined, the Federal Reserve purchased modest amounts of marks to cover its swap indebtedness.

Revaluation jitters reappeared during the June 1-2 French-German summit meeting, and the mark was once again bid upward. To moderate the rise of the mark rate, the Federal Reserve sold $17.1 million equivalent drawn on the swap line, thus raising outstanding drawings to a peak of $381.7 million equivalent. Moreover, the Bundesbank was again obliged to provide marks against EC snake currencies. The mark subsequently resumed a gradual decline through most of June. By June 25, the mark had dropped over 7 percent from its mid-May high to $0.3881 and had receded from the top of the EC snake. The Federal Reserve took advantage of this situation to purchase sufficient marks to reduce its swap drawings to $258.9 million by the end of the second quarter.

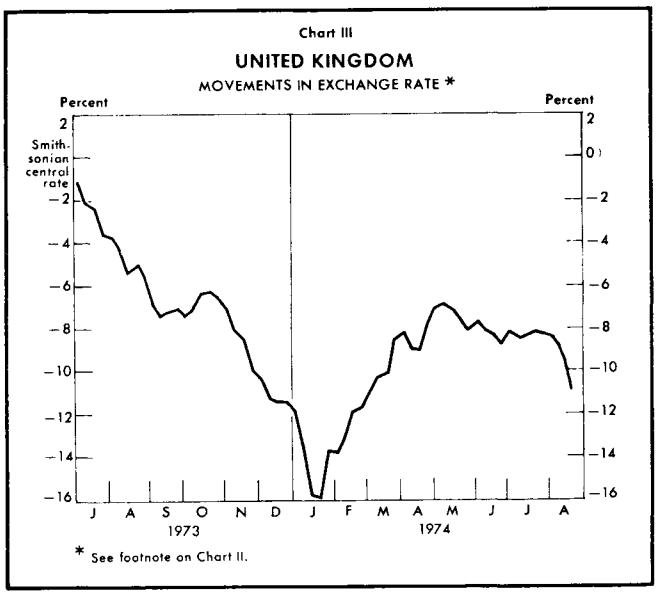
Throughout the spring, reports that several banks in various countries had incurred large foreign exchange losses generated growing market concern about the extent of speculative overtrading. Against this background, the June 26 closing of Bankhaus I. D. Herstatt, a major German private bank, by the German banking authorities had a far-reaching market impact. The bank was closed partly in consequence of large foreign exchange losses and left many banks both in Germany and abroad with unsatisfied claims on Herstatt. Throughout the world, bank managements moved to reassess their own foreign exchange positions and their dealing relationships with other banks. Trading in marks was virtually paralyzed in New York and in European markets; the large German banks in particular were reluctant to deal through brokers or to participate in the daily fixing. Under these strained trading conditions, small- and medium-sized banks found it difficult to raise needed funds either in the exchange or Euro-dollar markets to meet current obligations. To ease

this situation, the Bundesbank expanded Lombard and other credit facilities to provide additional liquidity on a selective basis to German banks.

The mark initially declined under the impact of the Herstatt collapse, then leveled off in extremely limited interbank dealing. In this situation of unusual market sensitivity, however, the central banks were prepared to intervene more promptly, and the Federal Reserve sold a total of $31.7 million equivalent of mark balances from late June through mid-July.

Shortly after midmonth a news report that the International Monetary Fund (IMF) had recommended a revaluation of the Netherlands guilder prompted a speculative run-up in the guilder. The selling of dollars soon spilled over into other markets, and the mark also began to advance. Such speculation intensified on July 24, when the Supreme Court's decision on the Watergate tapes was announced. The Federal Reserve responded by intervening forcefully, through sizable offers of marks as well as guilders. By the end of that day, total sales of marks had reached $43.8 million equivalent.

The subsequent recovery of the dollar was reinforced by news of a halving of Germany's June trade surplus to around $1 billion and of a cut by two thirds in the United States June trade deficit. Rapidly moving political developments in Washington kept the market on edge, but expectations of renewed intervention by the Federal Reserve provided a steadying influence. By the month end, the mark had declined to $0.3865, about 8 percent below its May peak, and had fallen to the bottom of the EC band. During July the Federal Reserve took advantage of the stronger dollar to accumulate additional mark balances through the market. Moreover, the System arranged to purchase $132.3 million equivalent of marks from the Bank of Italy. Italy had obtained the marks from a multicurrency drawing on the IMF. Using these resources the System repaid a further $194.2 million equivalent of swap drawings on the Bundesbank, leaving $64.6 million equivalent outstanding on July 31.



STERLING

Early in 1974 the United Kingdom faced an unusually difficult economic situation. Despite wage-price restraints and tight monetary policy, accompanied by historically high interest rates, prices were rising at a 15 percent annual rate and the rise was accelerating. The trade balance was registering a nearly $1 billion monthly deficit and was expected to worsen as the full impact of higher oil prices was felt. Real economic growth had fallen off sharply, and financial strains were apparent, especially among the smaller banks and in home-mortgage financing. A three-day workweek was imposed to conserve the nation's fuel supply, which had been sharply reduced by a confrontation between the miners and the government. This dispute heightened political tensions and tended to crystalize trade union opposition to wage and price controls. In early February, following the miners' decision to strike, an election was set for February 28.

Sterling came under periodic bouts of selling pressure, which drove it down to a low of $2.15¼ in mid-January and kept it relatively weak through early February. The pound therefore depreciated substantially against the continental European currencies, which were then advancing strongly against the dollar. By mid-February, however, the attraction of unusually high short-term interest rates in London, together with the persistent and expanding needs for sterling by oil companies to meet tax and royalty payments to oil-exporting countries, began to strengthen sterling. The rate then tended to follow other European currencies in their rise against the dollar, moving up nearly to $2.31½ just before the election.

The establishment of a minority Labor government was greeted with some caution by the market. After the government quickly moved to restore a normal workweek and resolve the trade union conflicts, however, the market atmosphere improved. Moreover, the renewal of exchange rate guarantees—this time against the weighted average of a number of currencies—on official overseas-sterling-area balances held in London was seen as forestalling

large-scale switching into other currencies. With money remaining tight in London, first-quarter inflows amounted to over $1½ billion. Thus, sterling continued to rise along with most other European currencies against the dollar through much of March, reaching $2.36 after midmonth.

The market nevertheless remained concerned over sterling's prospects. The previous dislocations of production coupled with the vastly increased oil import bill aggravated Britain's large foreign trade deficit, and inflation threatened to erode once again Britain's international competitiveness. The March 26 budget message, announcing new fiscal measures largely neutral on aggregate domestic demand as well as substantial new credit lines to bolster Britain's reserves, helped reassure the market. The new credit lines included an increase of $1 billion, to $3 billion, in the swap line between the Bank of England and the Federal Reserve and arrangement of a $2.5 billion Euro-dollar loan—the largest single Euro-currency loan ever contracted—to be taken down as needed. These lines would supplement the almost $3.5 billion previously borrowed by Britain's public authorities. Sterling retained some buoyancy in the exchanges and, when speculative selling of dollars developed just before the month end, the pound was briefly swept up to $2.42½, before settling back to just below $2.40 early in April. The pound also gained ground against the currencies of Britain's EC partners.

With sterling thus on a better footing in the exchanges, the British authorities felt in a position to relieve some of the tensions which had built up in domestic financial markets as a result of the sharp run-up of interest rates over previous months. The Bank of England reduced its call for special deposits from 4½ percent to 3 percent and successively cut its minimum lending rate from 12½ percent to 12 percent. Market interest rates in the United Kingdom also fell back from their historically high levels before leveling off. Meanwhile, interest rates in the United States and Euro-dollar markets were advancing, tending also to narrow interest differentials in favor of sterling. The spot pound turned somewhat easier through mid-April. As the dollar then came under generalized speculative pressure, sterling moved moderately higher once more, gaining nearly 2 percent against the dollar between mid-April and mid-May.

When the speculative surge of European currencies was suddenly broken, following press reports of possible concerted central bank intervention in support of the dollar, sterling declined against the dollar much less sharply than other European currencies. From mid-May, the depressing effect of a huge current-account deficit on the sterling rate was nearly offset by an increasing demand for sterling for tax and royalty payments to the OPEC members. In turn, these countries were investing the major share of their sterling accruals in high-yielding sterling instruments. In addition, reports that potential British North Sea output of gas and oil would greatly exceed earlier forecasts lifted some of the market's pessimism about the outlook for British trade. The pound settled near $2.40 in early summer in the reduced and cautious trading that followed the closing of the Herstatt Bank in Germany.

Thereafter, the British government continued to grapple with strong inflationary pressures and a worsening trade position, on the one side, and, on the other, a weakening trend of real output and income. Monetary policy was kept relatively firm, while on July 22 the government announced

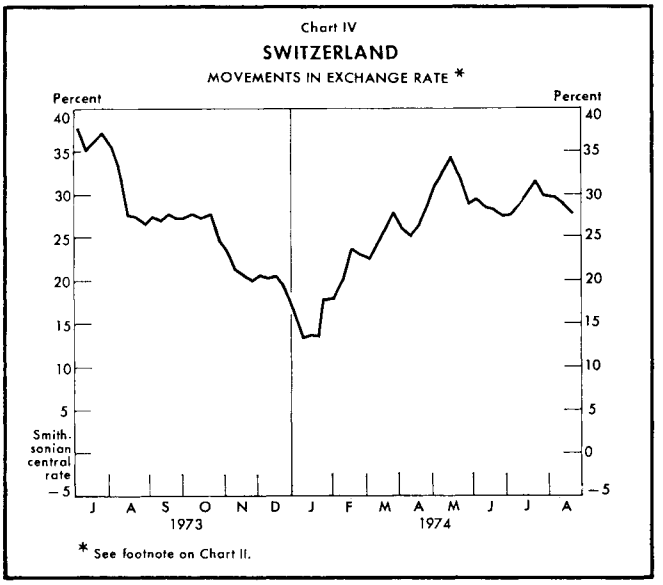
Table III

DRAWINGS AND REPAYMENTS BY FOREIGN CENTRAL BANKS AND THE BANK FOR INTERNATIONAL SETTLEMENTS UNDER RECIPROCAL CURRENCY ARRANGEMENTS

In millions of dollars

Banks drawing on Federal Reserve System	Drawings on Federal Reserve System outstanding January 1, 1974	Drawings (+) or repayments (−)			Drawings on Federal Reserve System outstanding July 31, 1974
		1974			
		I	II	July	
Bank for International Settlements (against German marks)	—0—	+26.0 −26.0	+76.0 −76.0	+5.0 −5.0	—0—
Total	—0—	+26.0 −26.0	+76.0 −76.0	+5.0 −5.0	—0—

a moderately stimulative package of fiscal measures, including a cut in the value-added tax to boost private spending. This combination of policies, less reflationary than some had feared, helped maintain a firm undertone for sterling. News that Iran had agreed to lend up to $1.2 billion to British industry over the next three years and the continuing demand for sterling by oil companies also helped buoy the pound. By the end of July, sterling, at $2.38½, was still almost 7 percent above its early-February lows. During the six-month period under review, the Bank of England intervened in the market intermittently to moderate exchange rate movements and to avoid the emergence of disorderly trading conditions.



SWISS FRANC

Early in the year, inflation in Switzerland rose to 10 percent per annum under the impact of higher oil prices. To curb inflationary pressures, the Swiss authorities relied primarily on a restrictive monetary policy, including incremental reserve requirements against domestic and foreign liabilities, credit ceilings, and noninterest-bearing penalty deposits against loan growth above the prescribed 6 percent limit. This policy, supported by the Swiss National Bank's abstention from intervening in the foreign exchange market, had resulted in a marked tightening of bank liquidity and an accompanying firming of Swiss and Euro-Swiss franc interest rates. To moderate the ensuing strain on Swiss financial markets, the Swiss National Bank at the end of January reduced required reserves by 20 percent and reduced limits on nonresident borrowings in Switzerland. Joining in the widespread dismantling of capital controls, the Swiss authorities lifted the prohibition on nonresident investment in Swiss securities and mortgages.

The lifting of controls opened the way for an influx of funds, and the Swiss franc rate led the sharp rise of Continental currencies against the dollar. By late February, the spot rate had risen to $0.3280, some 12 percent above mid-January lows. Strong demand for the Swiss franc, reinforced by a spillover from the rapidly rising German mark, continued in March, lifting the Swiss franc a further 3 percent.

Meanwhile, Swiss credit markets were tightening drastically. Short-term Swiss and Euro-Swiss franc rates firmed almost to mid-January levels, drawing funds away from longer term placements. To alleviate this pressure, the Swiss National Bank provided temporary liquidity beginning April 3 by arranging dollar swaps with the commercial banks, a technique ordinarily employed only at month or quarter end. The National Bank injected more permanent liquidity by reducing minimum reserves on both domestic and foreign bank liabilities. The central bank also raised the ceiling on the growth of bank credit for the period to July 1974 by 1 percentage point, to 7 percent per annum, while easing the burden of penalty deposits on excess lending. Although Swiss interest rates turned lower in response, speculative demand for francs continued strong. The franc followed the continuing rise of the mark in early May, as political uncertainties elsewhere in Europe and in the United States stimulated flows into the franc. By May 14 the spot rate had been swept up to $0.3588, more than 20 percent above its January lows.

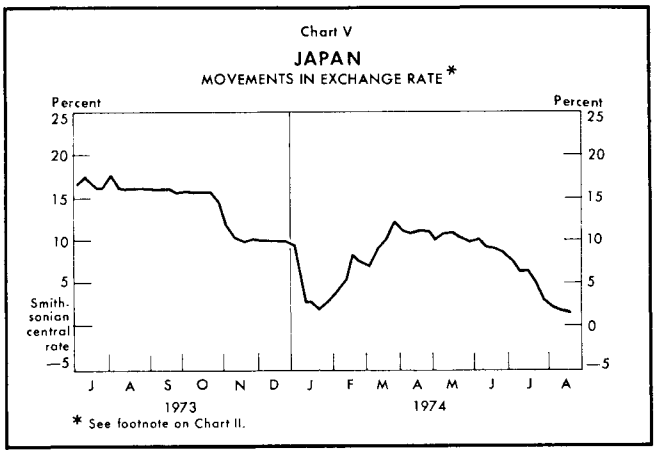
In the highly charged speculative atmosphere that had developed, the report of an agreement among the Federal Reserve, the Bundesbank, and the Swiss National Bank on intended concerted intervention to prevent a further erosion in dollar rates prompted an immediate reversal of market psychology. The spot franc came heavily on offer, tumbling 4¾ percent in twenty-four hours. As dealers continued to cut out long positions, the rate eased another 2 percent to $0.3360 by the end of May.

Liquidity pressures remained a matter of official concern in Switzerland. To reduce the strain on the longer term markets, on May 21 the authorities temporarily closed the Swiss capital market to issues of foreign bonds. The following week, they also agreed to extend growth limits on bank lending to guard against an excessive rise in short-term interest rates. As liquidity tightened toward the quarter's end in June, the National Bank again entered

into dollar swaps and cut minimum reserve requirements further. These actions helped prevent a further tightening of liquidity, and the franc moved generally in line with other European currencies during June.

The June 26 closing of Germany's Bankhaus Herstatt had a considerable psychological impact on the Swiss market. Amidst rumors that other banks might be afflicted with large foreign exchange losses, trading dropped off precipitously. Swiss banks sought to improve their liquidity positions beyond normal levels and reassessed the risks of exposure to their correspondents. Some banks were left with open positions following the Herstatt closing and had to find cover by bidding for francs. These added demands put upward pressure on Swiss and Euro-Swiss franc interest rates. The authorities responded with further swap assistance to keep Swiss franc interest rates in line with corresponding Euro-dollar rates to avoid sizable shifts of funds out of long-term markets.

Late in July, the Swiss franc moved up on rumors of a Dutch guilder revaluation and rose still further when the dollar came more generally on offer following the Supreme Court's Watergate tapes decision. In line with other European currencies the Swiss franc subsequently dropped back to $0.3378, about 6 percent below its May highs.



JAPANESE YEN

Dependent on imported oil for over 70 percent of its energy needs, Japan was particularly vulnerable to the economic impact of the energy crisis. Already suffering from a sharp upsurge of domestic inflation and a massive adverse swing in both trade and capital accounts, the higher cost of oil was expected to exacerbate the rise in production costs and to add significantly to Japan's import bill. The yen thus had come under increasing speculative pressure late in 1973. The authorities responded with a series of measures. They stiffened monetary policy, applied direct measures to conserve oil and electricity supplies, and shifted the pattern of capital controls to encourage inflows and slow outflows. In addition, the Bank of Japan intervened to moderate the continuing erosion of the yen rate, which reached levels that prevailed before the yen was floated by mid-January.

These actions, together with the termination of United States capital controls at the end of January, turned the tide, as Japanese banks stepped up their borrowings in the United States and Euro-dollar markets to finance Japanese imports of oil and other commodities. In addition, Japanese residents sold dollars to comply with new restrictions on their foreign-currency holdings. Consequently, the yen recovered 4 percent by late February and strengthened another 4 percent in March in response to a seasonal buildup of export receipts. Late in March the Bank of Japan intervened by purchasing dollars in small amounts for the first time since February 1973.

During the spring and early summer, Japanese banks continued to expand their net foreign borrowings. Also, in response to foreign exchange controls, long-term investment abroad slowed to $1 billion in the second quarter, compared with $1½ billion three months before. Japan's trade balance, which had sunk to a seasonally adjusted $1¼ billion deficit in the first quarter, moved back into surplus by June, as both imports and exports responded to a slowdown in the domestic economy.

Despite this improvement in Japan's balance of payments, settlement of import bills, representing payments for goods shipped into the country in previous months, strengthened the demand for dollars in Tokyo. The yen consequently eased gradually by some 3 percent to $0.003520 by the end of June. The yen's decline accelerated in July, however, as rumors circulated that the Japanese banks were approaching their credit limits abroad. The Japanese authorities requested the banks to refrain from excessive foreign borrowings and, to help the banks repay their dollar borrowings, placed additional official deposits with them. Nevertheless, the volume of import payments continued to swell, and by the month end the spot yen had dropped back to around its January lows. To resist the decline, the Bank of Japan resumed occasional support of the yen through moderate sales of dollars. Further adjustments in Japanese exchange control provisions relieved much of the selling pressure, and by mid-August the yen rate had stabilized.

FRENCH FRANC

The precipitous rise in Mideastern oil prices late last year threatened a $5 billion deterioration in France's trade account and a near doubling of France's rate of inflation. To protect reserves and employment in the face of such an adverse shift in the balance of payments, the French authorities temporarily withdrew from the EC monetary arrangement and allowed the French franc to float independently on January 19. Initially, the franc dropped by about 5 percent. After the initial impact of this decision had dissipated, however, and reports circulated that the government was arranging a $1.5 billion Euro-dollar borrowing to augment official reserves, the market gradually moved back into better balance. Following the termination of United States capital controls late in January, the franc joined in the general upsurge of European currencies.

The franc's advance continued into the early spring, although France's current account was rapidly moving into substantial deficit. Helping to buoy the spot rate were reports of additional French public-sector borrowings, totaling over $1 billion. In addition, the French authorities announced in March new measures to contain pressures on capacity and to bolster the balance of payments. They also terminated the two-tier exchange market. In response, the franc occasionally outpaced other European currencies that were also gaining strongly against the dollar. On these occasions, this Bank stepped in to provide resistance to an excessive rate movement, selling for the United States Treasury $15.8 million equivalent of francs on February 27 and similarly $17.9 million on March 20. By March 28 the franc was trading around $0.21, over 10 percent above its mid-January lows.

In early April the franc eased, as the death of President Pompidou on April 2 and prospects of new Presidential elections weighed on market psychology. In addition, expectations of a mounting German trade surplus became an increasingly depressing influence on the French franc as well as the dollar. The franc's decline was cushioned by the steady conversion of Euro-dollar borrowings by private- and public-sector enterprises. Nevertheless, by May the franc had dropped over 4 percent to $0.2020, while sliding over 8 percent against the mark and other snake currencies. After the election of President Giscard d'Estaing, the franc again began to move more closely with EC snake currencies, and by May 14 the spot franc had recovered against the dollar almost to its late-March levels.

In late May, rumors that a return of the franc to the EC snake was imminent circulated with increasing frequency. Traders particularly expected the June 1-2 French-German summit talks to produce an economic package designed to adjust intra-EC trade imbalances and to smooth the way for a return of the franc to the snake without a franc devaluation. Consequently, the franc held relatively firm through late May. When the franc

Table IV

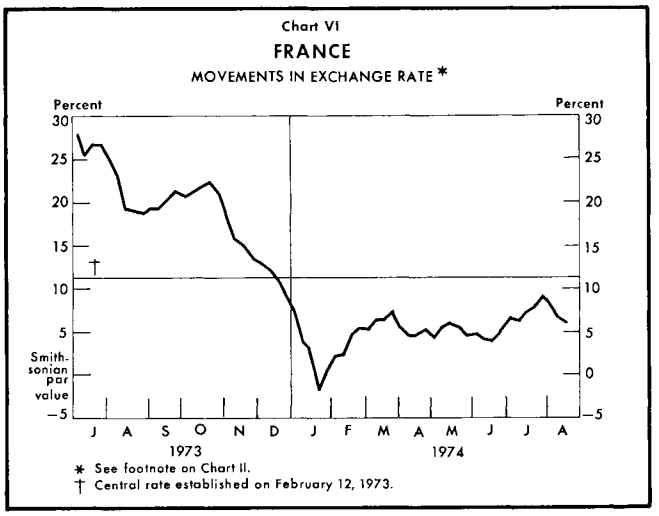
UNITED STATES TREASURY SECURITIES
FOREIGN CURRENCY SERIES

In millions of dollars equivalent

Issued to	Amount outstanding January 1, 1974	Issues (+) or redemptions (—)			Amount outstanding July 31, 1974
		1974			
		I	II	July	
Swiss National Bank	1,459.2	+127.3			1,599.3
Bank for International Settlements	127.3	—127.3			—0—
Total	1,586.4	{+127.3 {—127.3	—0—	—0—	1,599.3*

Note: Swiss-franc-denominated security issued to the Bank for International Settlements was reissued to the Swiss National Bank at its maturity in January 1974.

* Increase in amount outstanding reflects valuation changes upon renewals of maturing securities.



did not rejoin the EC arrangement after the summit talks, however, the franc's buoyancy faded and the spot franc, too, slipped back early in June.

Meanwhile, spiraling oil costs had pushed the rate of inflation almost to 15 percent, and the trade balance (on a customs basis) had swung into a deficit of $750 million in May. The government responded by announcing a broad stabilization program on June 12, including increased corporate and personal income taxes, continued restraints on credit growth and petroleum consumption, and incentives for personal savings. A week later, the Bank of France followed up by hiking its discount rate a full 2 percentage points to 13 percent. As market interest rates in France then climbed to record levels, short franc positions were quickly covered. In contrast to other European exchange markets, trading in the Paris market remained active following the Herstatt closure. As some French traders repatriated funds from Germany, the franc strengthened and the Bank of France bought dollars to moderate the rise. In July, the franc was pulled up further in the generalized speculative run-up of European exchange rates following rumors of the guilder revaluation, and the Bank of France continued to purchase dollars to moderate the upswing. After this speculative outburst, the franc declined only slightly against the dollar, in contrast to other European currencies, as an improvement in France's trade figures together with a sharp fall in the German trade surplus for June raised hopes that European trade was moving into better balance. By the month end, the franc was trading near $0.2140, its highest level since December 1973.

ITALIAN LIRA

The steep rise in oil prices at the end of 1973 had very serious implications for Italy which depends on imported oil for about 80 percent of its energy needs. The oil crisis threatened to add another $5 billion to a trade deficit already running at $4 billion in 1973 and to accelerate domestic inflation still further. These economic fears combined with serious political and social uncertainties generated large speculative capital outflows. The lira came under renewed selling pressure in January, plunging to $0.001480, and lost ground *vis-à-vis* other European currencies as well.

Concerned that a further weakening of the lira and a corresponding deterioration in Italy's terms of trade would aggravate domestic inflationary pressures, the Italian authorities intervened heavily in support of the spot lira. Such intervention was financed from the proceeds of foreign borrowings by Italian public enterprises as well as new Bank of Italy swaps with the commercial banks. To bolster reserves, several new public-sector borrowings were arranged. Moreover, the swap line between the Bank of Italy and the Federal Reserve was increased by $1 billion to $3 billion, effective February 1, and after midmonth the Italian authorities announced that negotiations were under way for a $1.2 billion IMF standby credit. Although news of additional credit facilities was well received in the market, pessimism over Italy's domestic economic situation and trade performance remained deeply entrenched, and the Bank of Italy intervened heavily to keep the lira in line with the other EC currencies as they firmed against the dollar in February. Later that month, pressure on the lira intensified as a division over economic policy led to the dissolution of the cabinet on March 1.

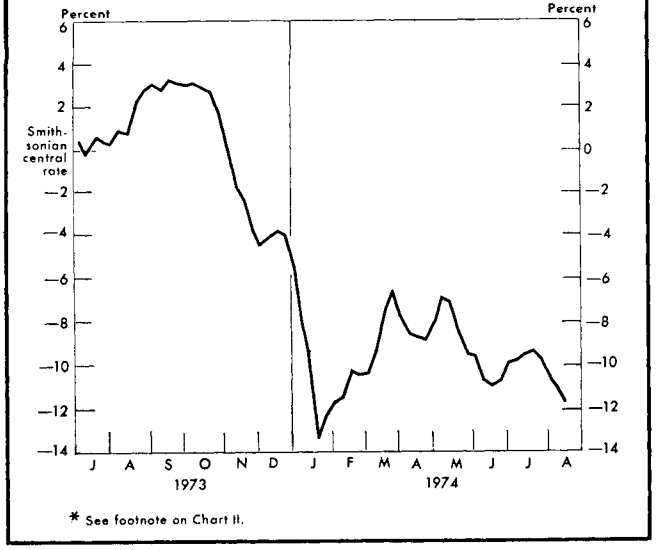
The prompt formation of a new government under Premier Rumor was followed by a sequence of counter-inflationary measures that temporarily firmed the lira rate. Monetary policy was tightened, as the Bank of Italy imposed a one-year ceiling on the growth of most categories of bank lending and raised its basic discount rate 2½ percentage points to 9 percent. These actions triggered an immediate escalation of private borrowing and lending rates. The government moved to increase the value-added tax on nonessential consumer goods to discourage imports, raised prices for some government services, and strengthened income tax provisions. New regulations on the export and import of lira bank notes were also imposed, and on March 22 the two-tier foreign exchange market was abolished in favor of a uniform market for commercial and financial transactions. These various measures were initially welcomed in the exchange markets but, as traders

began to question their effectiveness, the selling of lire was resumed. The authorities continued to provide substantial support to the lira to keep it generally in line with other EC currencies, which were rising sharply against the dollar. By the end of March, official support for the lira had swelled since the beginning of the year to over $3 billion. The intervention was financed in part by new foreign borrowing including EC short-term support. By the quarter end, the total of Italy's medium-term Euro-dollar borrowing came to about $9 billion.

In April, Italy's trade deficit, running at $1 billion a month, continued to weigh on the market, and the lira required almost daily official support. The Italian authorities moved at the end of April to reinforce their earlier monetary restraints by imposing a 50 percent import-deposit requirement on most categories of imports. This measure, implemented early in May, gave a lift to the lira, which in any case was marked up somewhat in the general resurgence of speculation against the dollar that peaked toward mid-May. Even before the dollar's mid-May recovery, however, continued uncertainties had begun to weaken the lira rate against other European currencies. The market became increasingly unsettled after new figures showing the extent of the balance-of-payments deterioration were released. Moreover, grim appraisals of the Italian economy by responsible leaders inside and outside the government underscored the seriousness of the situation. As the debate over economic policy provoked a cabinet crisis in early June, the lira dropped to as low as $0.001531.

The cabinet was quickly reestablished, however, and additional stabilization measures were adopted, including a renewed effort to bring government expenses under control. At the same time, the monetary restraints in force since March began to bite, leading to a tightening of liquidity and a consequent reversal of capital outflows. The lira therefore improved in June and remained steady in the atmosphere of cautious dealing that developed in all markets after the Herstatt Bank failure. During July, the Bank of Italy was a net buyer of dollars in the market. By the month end, the spot rate had settled near $0.001555, some 5 percent above its mid-January lows.

Chart VII
ITALY
MOVEMENTS IN EXCHANGE RATE *

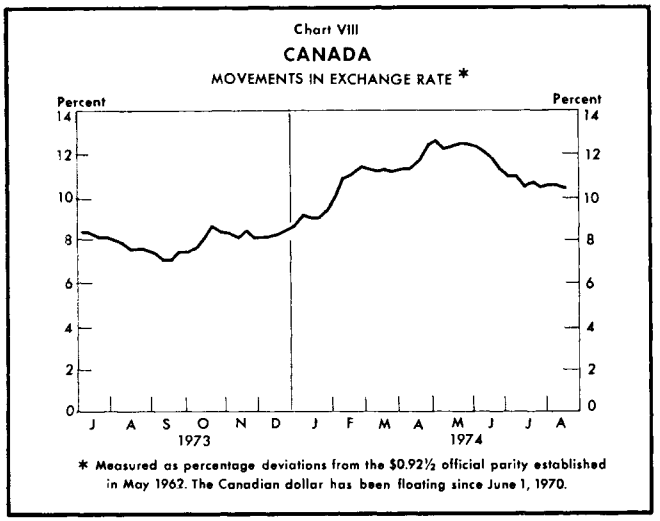


* See footnote on Chart II.

CANADIAN DOLLAR

The prospects of a continuing surplus in Canada's trade balance provided a firm undertone to the Canadian dollar early in 1974. A major exporter of raw materials and industrial commodities, Canada was expected to benefit from the historically high commodity prices. Moreover, as Canada is largely self-sufficient in oil, its trade position was seen as unaffected by the sharp hike in oil prices that was swelling the import bill of other developed countries. The positive market assessment for the Canadian dollar was further reinforced in January when United States interest rates dropped off sharply, Canadian rates held steady, and interest differentials shifted in favor of Canada. With this shift stimulating substantial short-term inflows, the Canadian dollar enjoyed a broad-based advance that was sustained by both strong commercial and professional demand late in January. Positioning ahead of conversion of provincial borrowings abroad, outright forward purchases of Canadian dollars, and cuts in United States prime rates provided further impetus to the upswing through February. By the month end, the Canadian dollar had climbed almost 3 percent to above $1.03¼. In moderating the rise, the Bank of Canada had purchased sizable amounts of United States dollars, thereby contributing to the $429 million increase in reserves for the first two months of the year.

From March to mid-April the Canadian dollar steadied, fluctuating narrowly around $1.03 in response to actual or prospective interest rate incentives. Then, on April 15, the Bank of Canada raised its discount rate a full percentage point to 8¼ percent to temper the strong demand for domestic credit and to bring it in line with higher interest rates abroad. The commercial banks soon followed by raising their prime rates and, as Canadian interest rates



rose, demand for Canadian dollars swelled. The spot rate soon was pushed above its February peak, to just below $1.04½ on April 25 even as the Bank of Canada again purchased dollars to moderate the advance. Concern that the Liberal government might lose a confidence vote on its upcoming budget proposals led to a brief downturn in the Canadian dollar early in May. Although an election was eventually called, the spot rate held firm as a further rise in interest rates and a second increase in the Bank of Canada's discount rate to 8¾ percent continued to attract short-term funds from abroad. By May 23 the Canadian dollar was again trading near $1.04.

In mid-June, however, the Canadian dollar began gradually to weaken. Canadian interest rates were now lagging behind the uptrend of United States rates. In addition, Canada's trade account had weakened and, by June, dropped into deficit. The spot rate continued to slip, even after a clear-cut victory for the Liberal government in the July elections cleared away political uncertainties and the Bank of Canada raised the official discount rate further to 9¼ percent. By the end of July, it had dropped below $1.02¼ and the Bank of Canada had intervened to moderate the steady erosion. Over the course of the two-month slide the Canadian reserves declined some $200 million.

NETHERLANDS GUILDER

In late 1973, the Mideast oil embargo on the Netherlands and the sharp rise of oil prices had initially prompted pessimistic assessments for the Dutch economy. By mid-January, however, such fears had begun to lift. The nation's strong underlying payments position, a $1¾ billion surplus in 1973, provided ample room to withstand the estimated $1¼ billion in higher oil costs, and revenues from the Netherland's natural gas exports were expected to benefit strongly from the energy shortage.

Following the widespread relaxation in early 1974 of capital controls, high Dutch interest rates stimulated some reflow of funds to the Netherlands. In late January and February, the guilder rose more rapidly against the dollar than most European currencies, climbing 10 percent from mid-January lows to $0.3635 in late February.

Meanwhile, in response to signs of a slackening of domestic economic activity, plans were announced to provide moderate stimulus through tax reductions and higher government expenditure. In addition, the Netherlands authorities remained concerned over an undue tightening of money market conditions. As earlier official swaps with Dutch commercial banks matured, they were rolled over or replaced with outright purchases of spot dollars by the central bank. Furthermore, the cost of central bank credit was reduced during February and early March. As a result of these actions, Dutch interest rates eased somewhat so that by mid-March the guilder, while holding relatively firm against the dollar, had eased against other EC currencies.

Later in March, rumors of a possible revaluation of the mark led to bidding for guilders, reflecting expectations that the guilder would follow a mark revaluation. The guilder at first kept pace with the mark, climbing to $0.3738 even as the Netherlands Bank purchased dollars to moderate the advance. As speculation focused more and more on the mark, however, the guilder dropped to the floor of the EC band, where it was supported by the Dutch and German central banks. To relieve such pressure on the guilder, the Netherlands Bank tightened domestic liquidity by allowing maturing swaps with the commercial banks to run off. This operation had the desired effect, and by May 14 the guilder had fluctuated sharply higher with the mark to $0.3983.

Following reports from Basle on May 14 that concerted central bank intevention had been planned to support the dollar, the guilder fell off from its peak levels. A temporary easing of the Amsterdam money market accentuated the decline. By late May, the guilder had again fallen to the bottom of the EC snake, as well as to the floor of an almost fully extended Benelux band where it traded with only brief interruption through late June.

The closing on June 26 of the Herstatt Bank brought both spot and forward trading in Amsterdam virtually to a halt. Trading recovered only hesitantly over succeeding

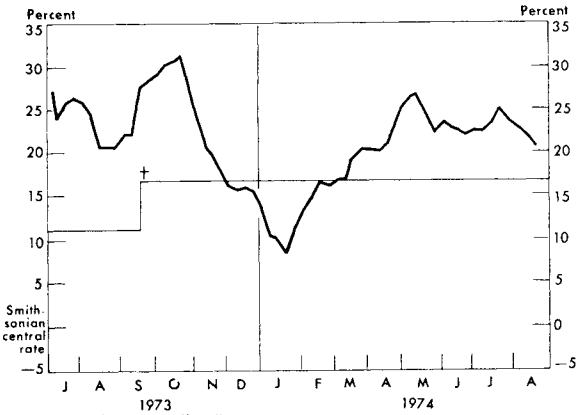
days. The covering of short positions in guilders left exposed by the Herstatt collapse gave some buoyancy to the guilder rate by mid-July. Some interest-induced inflows and nonresident purchases of guilder-denominated securities also contributed to the rise. The firming tendency was also in part the result of a more positive market outlook for the Dutch payments position that emerged after termination of the oil embargo on July 10.

Circulation in the Amsterdam press on July 23 of a report that an IMF study group had recommended a guilder revaluation touched off a scramble for guilders. Although the report was officially denied, the guilder nevertheless rose to the top of the snake, while a more generalized speculative movement against the dollar developed. The Supreme Court's decision on the Presidential tapes led to further dollar selling on July 24. That day the Federal Reserve placed sizable offers of guilders in the New York market. This was done in coordination with the Netherlands Bank, which had purchased dollars outright in the Amsterdam market and sold guilders against other EC currencies. The market backed away from the Federal Reserve offerings, and only $2.3 million equivalent of guilders was actually sold. The Federal Reserve financed these sales by a swap drawing with the Netherlands Bank. The guilder closed the day at $0.3895, some ½ percent off its high.

Wire service reports late on July 24 of Federal Reserve intervention in guilders and marks had a steadying effect on the market the next day. The Netherlands Bank reinforced this effect with additional dollar purchases early in the morning. After the New York opening, a categorical official Dutch denial of any revaluation plans led to further easing of the guilder against the dollar and movement of the guilder to well below the top of the snake. With the guilder's easing, the Federal Reserve was able to purchase the $2.3 million equivalent of guilders needed to liquidate its swap debt.

The guilder's decline was subsequently accelerated by announcements of a greatly reduced United States June trade deficit and of a swing of the Dutch position into deficit for May. By the end of July the spot rate had fallen back to $0.3810, over 4¼ percent below its May high.

Chart IX
NETHERLANDS
MOVEMENTS IN EXCHANGE RATE *



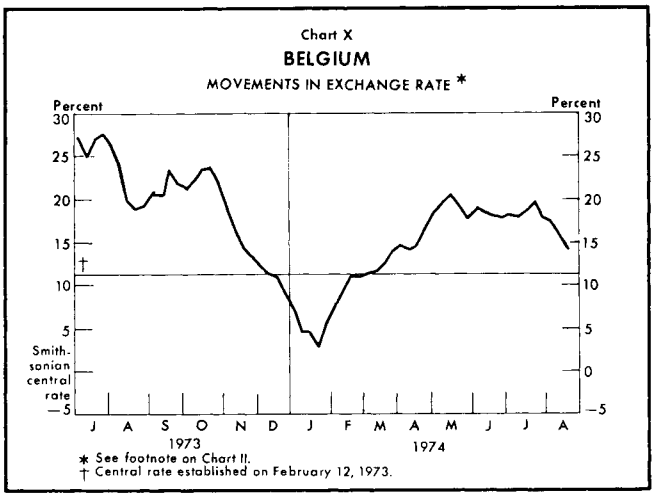
* See footnote on Chart II.
† New central rate established on September 17, 1973.

BELGIAN FRANC

By the end of 1973, Belgium's restrictive monetary policy had contributed substantially toward holding the inflation rate just under 7 percent. Domestic restraint permitted strong export demand to widen the current-account surplus to $1½ billion for the year as a whole. The sudden hike in oil prices, however, threatened to erode the current-account surplus for 1974 by an estimated $1¾ billion and to set back earlier progress toward bringing inflation under control. In late 1973, the Belgian franc weakened sharply against the dollar and settled to the bottom of the EC band.

In early 1974 the Belgian franc participated in the general strengthening against the dollar. Joining other countries in relaxing capital restrictions, Belgium lifted the prohibition on interest payments to nonresidents and the 100 percent reserve requirement on nonresident accounts. To bring Belgian interest rates more in line with other EC countries, the National Bank raised its discount rate by 1 percentage point to 8¾ percent on February 1. After this move, the Belgian commercial franc advanced more rapidly against the dollar than most European currencies and rose to the top of the EC snake. The rate reached $0.025100 by February 22, over 10 percent above its mid-January lows.

At this point, the Federal Reserve intervened with offers of Belgian francs along with other currencies. The Federal Reserve sold $6.8 million equivalent from balances accumulated earlier in the month when the franc was still weak within the EC snake. The Belgian franc was again pulled up against the dollar in the wake of speculative pressures on the German mark. The Desk intervened on March 20 with sales of $10 million equivalent of Belgian francs, also from balances. Rumors of a German mark revaluation persisted, and the Belgian franc soon dropped to the bottom of the EC band where it required intervention peri-



odically throughout April and early May. Against the dollar, the spot franc was dragged up by the mark to a high of $0.027235 on May 14, almost 20 percent above its January lows.

During these months, Belgium's rate of inflation increased and reached an annual rate of 11 percent. The National Bank responded by progressively tightening its monetary restraints at a time when domestic liquidity was already being contracted by foreign exchange outflows. The National Bank cut commercial banks' discount quotas and stiffened reserve requirements against bank credit expansion, while reserve requirements on time deposits were eased. These new monetary restraints helped push Belgian interest rates above levels prevailing in other countries participating in the EC snake arrangement. Also tending to strengthen the franc was the formation in April of a new government under Premier Tindemans, which relieved the uncertainties of a three-month governmental crisis. In mid-May, once the speculative movement into marks tapered off and the snake moved lower against the dollar, the franc began to strengthen against other EC currencies. By early June the Belgian franc reemerged at the top of the EC band.

The Belgian authorities continued to tighten their anti-inflation program. In early summer the government announced a budgetary plan, providing for increases in taxes to ensure equilibrium in the 1975 budget. The National Bank replaced an expiring gentleman's agreement limiting commercial bank credit expansion with new legal rules. Based on this authority, it cut credit expansion limits for the next four months from 17 percent to 14 percent. Reinforced by these new restraints, the Belgian franc traded steadily around $0.026400 and remained firm within the EC and Benelux bands, while the German mark and certain other currencies fell from their speculative peaks. In late June and July the National Bank periodically bought EC currencies to keep the franc within the snake and Benelux limits and regularly purchased small amounts of dollars to assist in this effort. In mid-July the Federal Reserve supplemented its sales of marks with sales of $4.4 million equivalent of Belgian francs from balances to resist an excessive erosion of dollar rates. When speculation over a guilder revaluation triggered a generalized selling of dollars late in July, the franc rose temporarily, but dropped back by the month end to $0.026280, some 3½ percent below its May highs.

EURO-DOLLAR

During the period, the oil price escalation with its attendant balance-of-payments problems subjected the Euro-currency markets to heavy demands. In general, countries around the world depending on oil imports rushed to the Euro-market to finance their expected needs, attempting to extend the maturities out as far as possible. As the flow of funds to OPEC members subsequently swelled, they placed a large share of the excess over current expenditures in the Euro-currency market but mainly for very short-term maturities. Banks were thus faced with an increasingly difficult problem of reconciling the maturity differentials between their claims and liabilities. In addition, following disclosures of foreign exchange losses by several banks, bank managements reacted by strengthening their internal controls and by tightening their credit limits for all but the very best names. As a result, a multitiered rate structure emerged, and many smaller banks and even large banks of some countries had to pay premiums over rates at which prime banks could obtain funds. One consequence of this tiered rate pattern was that many banks at rollover dates for syndicated term loans were obliged to refinance their commitments at rates above the London interbank deposit rate on which the floating interest rates to be charged to borrowers are contractually based.

Despite the segmentation of the market, the Euro-currency market continued to expand at an impressive rate between February and July. During the early months of the year, official and semiofficial borrowers in the United Kingdom, Italy, and France obtained loan commitments of close to $10 billion in anticipation of mounting oil deficits. The market was also tapped by developing countries, especially in Latin America and Asia, by Eastern bloc borrowers, notably Yugoslavia, and by public-sector institutions in Spain and Greece. Among

nonofficial borrowers, Japanese banks entered the market on a large scale and soon became heavy net debtors, reversing their net foreign creditor position built up during 1972 and 1973. In response to the heavy demands for funds in the Euro-currency market, interest rates were bid up, providing a further incentive for recycling into the market the rapidly growing oil revenues of the OPEC countries. In addition, the Euro-currency market received a strong boost following the removal in January of United States restraints on capital outflows. Through late spring, United States banks and other financial and nonfinancial institutions lent large amounts in the Euro-markets. During recent months, however, whenever Federal funds rates climbed above overnight Euro-dollar rates, head offices of United States banks stepped up their Euro-dollar takings from their overseas branches. Similarly, major foreign banks arbitraged on occasion sizable amounts of Euro-dollars into the United States money market.

More recently, market expansion has probably slowed. A somewhat larger portion of aggregate OPEC surplus fund accruals appears to have been placed in the United States money market, although investments of Mideastern oil-producing countries in the United States still represent only a fraction of that area's current surplus. Japanese banks became less insistent bidders under instructions of their government. To facilitate this policy, the Japanese Finance Ministry increased its dollar deposits with domestic banks. In addition, Italian banks have also reduced their borrowings.

Euro-dollar rates tended to move closely with money rates in the United States through May. They bottomed out in late February, when three-month Euro-dollar maturities were just above 8 percent, and thereafter climbed steadily until early May (see Chart XI). This rise was in contrast to interest rate declines in some European centers (see Chart XII). After pausing during May, Euro-dollar rates resumed their climb and reached unprecedented levels in the aftermath of the Herstatt collapse. Thus, rates on three-month maturities reached 14 percent in mid-July, rising well above comparable United States certificates of deposit rates. In the latter half of that month, rates generally fell back, but the July average rate as well as the mid-August rate for the three-month maturity was close to 13½ percent.

Because of limits imposed by customary capital-asset ratios, many major intermediaries have found it difficult to accept increasing amounts of OPEC deposits. Some major banks have refused to add to their Euro-currency footings; others have become more reluctant to accept very short-dated deposits and are quoting below the market to discourage such supplies. As a result, some of the OPEC countries have been willing to place funds at somewhat longer maturities. Still, the market remains confronted by the sharp divergence of maturities at which funds are placed and at which oil-importing countries wish to finance their balance-of-payments deficits. While the market has so far made a major contribution to the recycling of funds from oil-producing countries to those with balance-of-payments deficits, its capacity to continue such financial intermediation on a large scale may partly depend upon the availability of deposits at longer maturities. Finally, as recently noted by Federal Reserve Board Governor Wallich: "The problem of the weaker countries is obvious —they will sooner or later find it difficult to attract funds from the market as their debt burdens reach the limits which the market should and probably will place on their borrowing capacity."

Chart XI

INTEREST RATES IN THE UNITED STATES, CANADA, AND THE EURO-DOLLAR MARKET

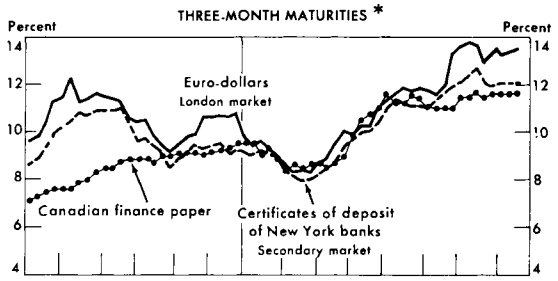
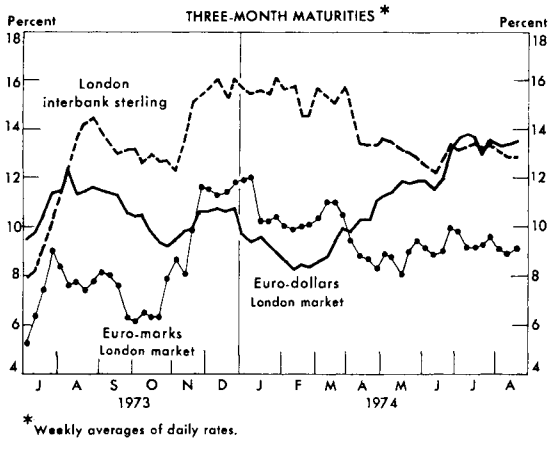


Chart XII

SELECTED INTEREST RATES



*Weekly averages of daily rates.

The Business Situation

The latest readings of business indicators suggest that the economy continues to drift at the sluggish pace that characterized the second quarter.* On balance, the modest gains recorded in some sectors have been offset by declines in others. Industrial production barely inched ahead in July and was still below the peak attained last November. Activity in the automotive sector picked up a bit in July, as sales and production of new domestic models registered advances. According to the advance report, the rise in auto sales led a substantial increase in July retail sales. Manufacturers continued to accumulate inventories at a rapid rate in July. Capital appropriations spurted in the second quarter, but smaller gains in business spending on plant and equipment are planned for the second half of the year than occurred over the first six months. The situation in the residential housing market deteriorated further in July, reflecting rising interest rates and the increasing scarcity of mortgage funds.

Despite the sluggishness of the economy, the price situation remains unrelentingly dismal. Prices of wholesale industrial and consumer nonfood commodities have continued to advance at excessively rapid rates. Evidently, these increases are largely the result of concurrent and past hikes in labor and materials costs, although to some extent the inflation may still reflect the end of price controls. In any event, the price outlook has been dealt yet another blow from the drought in the Midwest and sharp rises in the wholesale prices of grains and meats have already surfaced.

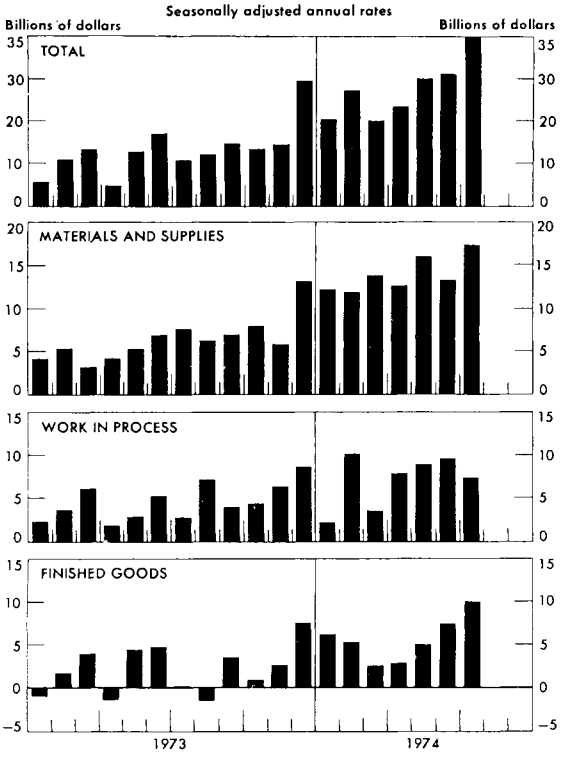
*The revised second-quarter estimates indicate that gross national product (GNP) rose $28.5 billion, or at a seasonally adjusted annual rate of 8.7 percent. The rate of increase in the implicit GNP deflator was revised upward slightly to 9.6 percent per annum, and the rate of decline in real GNP was revised to 0.8 percent. According to the preliminary estimates released along with the GNP revisions, pretax corporate profits were reported to have risen $11.7 billion to a seasonally adjusted annual rate of $150.4 billion.

INDUSTRIAL PRODUCTION, RETAIL SALES, ORDERS, AND INVENTORIES

The Federal Reserve Board's index of industrial production inched ahead at a seasonally adjusted annual rate of 1 percent in July, offsetting the decline of the previous month. Energy production continued to rebound in July and has climbed 10 percent at an annual rate since reaching its recent low in March. Production of consumer goods also rose modestly in July, while production of construction materials declined in response to the slowdown in residential building. Production of business equipment was unchanged, remaining close to the peak reached in May.

Following the sharp energy-shortage-related contraction in the opening months of the year, the recovery in industrial production has proceeded at a slow pace. Between March and July, output has grown at an average 2.4 percent annual rate. There is a possibility that in coming months energy shortages may again occur. For instance, in a recent announcement, the Federal Energy Administration projected some natural gas shortages this winter. Of course, the importance of natural gas shortages on economic activity will depend on a number of unknown factors, such as the severity of winter weather and the economy's ability to substitute alternative energy sources. The availability of at least one alternate energy source, coal, seems questionable inasmuch as the United Mine Workers contract expires in November. With coal inventories already low in the steel and utilities industries, a lengthy strike could bear heavily on economic activity. As a bargaining device, the mine workers already have employed "memorial" work stoppages that reduced coal production. In addition to these possible energy problems, the oil situation continues to be uncertain. Several member nations of the Organization of Petroleum Exporting Countries have recently announced production cutbacks in an attempt to support oil prices in the face of a growing world surplus of crude oil.

Chart I
CHANGES IN MANUFACTURERS' INVENTORIES
BY STAGE OF FABRICATION
Seasonally adjusted annual rates



Source: United States Department of Commerce, Bureau of the Census.

The automotive sector recorded further modest gains in July. Production of domestic passenger cars rose 1.3 percent in that month to an annual rate of 7.8 million units, the highest reading this year but still below any monthly figure for the 1971-73 interval. Continued strike activity at General Motors apparently served to hold output below the 8.5 million units scheduled for the month. In any event, new car assemblies in July were nearly 25 percent below those of a year earlier. Sales of new domestic-type cars increased in July to an annual rate of 8.2 million units, the most rapid sales pace since late last year. Continuing the trend which emerged after the termination of the Arab oil embargo, large cars accounted for an increased share of domestic auto sales in July.

According to the advance report, automotive sales accounted for more than two fifths of the substantial July rise in total retail sales, which is estimated at 4 percent (not an annual rate). Sales of other consumer durables rose moderately, while sales of nondurables posted a sizable 2.9 percent advance for the month.

New orders received by durable goods manufacturers rose in July by $1.01 billion, or 2.2 percent, about equal to the growth averaged over the first six months of this year. The July gain resulted totally from a large jump in orders in the transportation-equipment sector, due mainly to higher auto orders. However, these data are difficult to interpret precisely because the timing of the summer model changeover period complicates seasonal adjustment procedures. Excluding the transportation sector, new orders for durable goods in July fell 1.6 percent, led by a decline in bookings for primary metals. Although shipments of durable goods picked up sharply in July, the backlog of unfilled orders continued to climb, reaching a level 31.5 percent above the total of the corresponding month of last year.

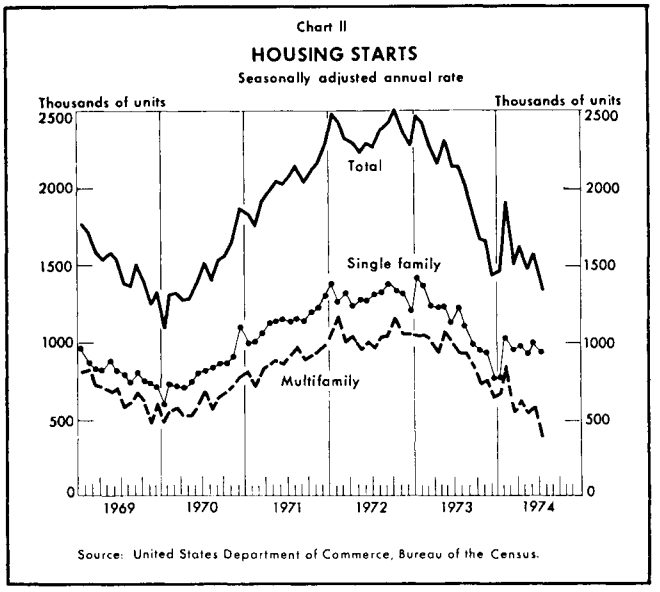
The book value of manufacturers' inventories increased sharply in July, rising at a seasonally adjusted annual rate of $35 billion (see Chart I). This was the largest increase in the current inventory buildup that began in December; over the December-July period, manufacturers have added an average $27 billion to their inventories. Despite the large increase in inventories in July, shipments rose at even a faster pace and the inventory-sales ratio in this sector declined to 1.62 months of shipments from 1.65. However, because of accounting practices, the change in book value of inventories, unlike shipments, only partially reflects the effect of spiraling prices. As a consequence, it is difficult to interpret whether the inventory buildup represents desired or unintended accumulation. Examining inventories by stage of fabrication suggests that finished goods are beginning to account for a larger portion of the increase in total inventories. While the bulk of July's increase continued to be in materials and supplies and work in process, finished goods inventories rose at a $10 billion annual rate in that month, substantially above the $5.6 billion rate of accumulation averaged since December.

CAPITAL SPENDING

According to the Commerce Department survey taken in July and August, business spending on new plant and equipment is now expected to rise 12.5 percent in 1974, slightly above the planned 12.2 percent increase indicated in the earlier survey. Over the first half of 1974, actual plant and equipment outlays are estimated to have risen $7.7 billion, or 14.8 percent at a seasonally adjusted annual rate, slightly above the gain expected in the earlier Commerce survey. However, as indicated in the earlier survey, smaller increases are planned for the second half of the year. A special survey taken by the Commerce Department in late 1973 indicated that spending on air-

and water-pollution-abatement equipment represented approximately one sixth of the planned increase in capital expenditures of all industries. At that time, planned anti-pollution expenditures represented more than 20 percent of the capital budgets of the nonferrous metals, iron and steel, and paper industries. Thus, taking into account pollution-abatement expenditures and the impact of inflation, the growth of the productive capacity of many industries will be considerably less than that indicated by total planned outlays in current dollars. Over the second half of 1974, nonmanufacturing outlays are expected to grow only modestly, with utilities and railroads paring earlier planned expenditures.

As reported by the Conference Board's survey of large manufacturers, capital appropriations jumped a sizzling 39 percent (not an annual rate) in the second quarter, with the increase concentrated in nondurable goods manufacturers, especially materials-producing industries. Leading the advance were increased appropriations in the petroleum, nonferrous metals, paper, and chemical industries. Since the change in appropriations reflects both changes in prices and planned real spending, the Conference Board has developed data that exclude the effect of inflation. In constant dollar terms, new appropriations rose a substantial 33 percent in the second quarter, and the backlog of unspent appropriations climbed 14 percent. Of course, appropriations may be canceled, and the timing of the planned expenditures is uncertain. Nevertheless, the size of the advance in new appropriations and backlogs in constant dollars suggests that increased business spending on new plant and equipment may be in the offing.



RESIDENTIAL CONSTRUCTION

Residential building activity slumped further in July under the pressures of high interest rates, escalating construction costs, and the scarcity of mortgage money. On a seasonally adjusted annual rate basis, housing starts fell to 1.3 million units in July, down almost 38 percent from a year earlier and the lowest level in over four years. While the entire residential construction sector has lately been depressed, multifamily units have been particularly hard hit (see Chart II). In July, multifamily starts amounted to 394,000 units at an annual rate, more than 57 percent below the level in the corresponding month of last year. In part, this decrease reflects a weakening in the demand for both rental and condominium apartments. In the second quarter, for example, the rental vacancy rate stood at a six-year high of 6.3 percent. Moreover, the availability of multiunit construction loans has been squeezed by the deteriorating financial position of real estate investment trusts, which supplied about 10 percent of all multifamily lending in 1973.

High market rates of interest have served to restrict the availability of mortgage money, as savers have channeled funds to instruments such as money market mutual funds, variable-rate notes of bank holding companies, and Treasury securities. Deposits at thrift institutions, seasonally adjusted, grew at only a 1.2 percent annual rate in July, the lowest rate since January 1970 and well below the 6.3 percent gain averaged in the first six months of the year. Over the three months ended in July, thrift deposits grew at a scant 3.2 percent annual rate. Mutual savings banks have been particularly hard hit, losing deposits on a seasonally adjusted basis in July for the third time in the past four months. In view of this slowdown in deposit flows, both savings and loan associations and mutual savings banks have become increasingly reluctant to make new mortgage commitments. In fact, outstanding mortgage commitments, seasonally adjusted, at savings and loan associations and New York State mutual savings banks have declined $2.6 billion, or 13 percent, since April.

By any measure, mortgage market interest rates have skyrocketed. In the Federal National Mortgage Association's (FNMA) August 26 auction, the yield on four-month FNMA commitments to purchase Government-insured mortgages rose to a record high of 10.38 percent, up 168 basis points from the January 1974 auction. In the primary mortgage market, rates also continued to soar.

In an attempt to remain competitive with conventional mortgages rates, the ceiling rate on Government-insured mortgages was raised 50 basis points in August to a record high of 9.50 percent. This marked the fourth time in five months that the ceiling on interest rates of mortgages insured by the Federal Housing Administration (FHA) and guaranteed by the Veterans Administration (VA) was raised. Moreover, prospective home buyers reportedly are facing even higher rates as the rates on mortgage commitments continue to rise.

Sales of single-family homes slowed to a seasonally adjusted annual rate of 539,000 units in June, down from the 598,000 units reached in May. The backlog of homes for sale remained virtually unchanged at 434,000 units. However, the median time that this inventory of homes has been on the market, as measured from ground breaking, rose to 8.3 months in June, from 7.6 months in May and the 6.2 months averaged in the first quarter. The seasonally adjusted ratio of homes available for sale to homes sold rose to 9.9 months of sales in June. Despite this weakening in sales, prices of new homes continued to advance. As measured by the Bureau of the Census index, the price of new one-family homes sold rose at a 13.2 percent annual rate in the second quarter, compared with a 7.6 percent increase in the first quarter and 10.5 percent in 1973. Shipments of mobile homes, which tended to hold up in previous housing downturns, declined in June to an annual rate of 441,000 units, well below the 600,000 units shipped a year ago.

Last May, the Federal Government announced an emergency housing program that was to provide up to $10.3 billion to the mortgage market. Thus far, it appears that this program has not had much impact, despite the strong reaction to the Federal Home Loan Mortgage Corporation's forward commitment program. Builders' response to the Government National Mortgage Association (GNMA) Tandem Plan has been quite slow, possibly because of the delays involved in obtaining FHA or VA approval. While activity appears to have picked up somewhat recently, GNMA still has unused authorization to purchase below-market-rate mortgages on about 175,000 units. Furthermore, it appears that savings and loan associations may be hesitating to add the subsidized Federal Home Loan Bank (FHLB) five-year advances provided by the emergency program to their already high borrowings from the FHLBs.

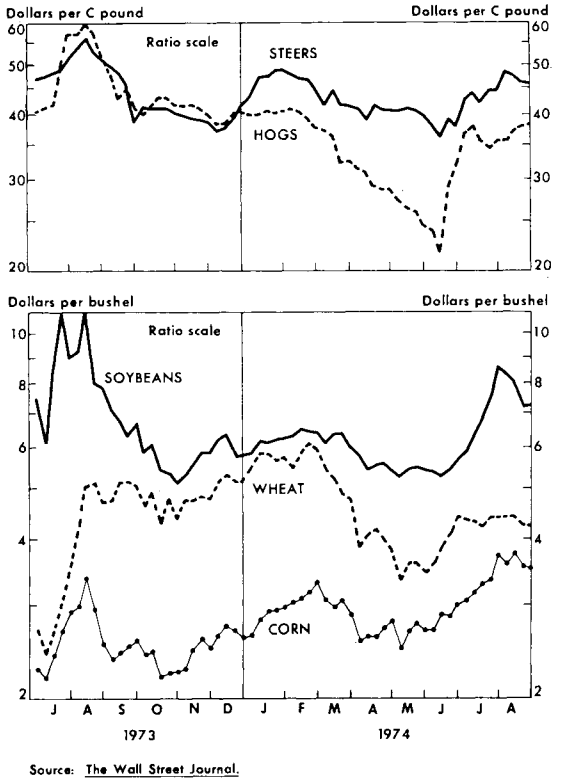
Regardless of the extent to which this program is utilized, it is not clear whether it will bring additional funds to the mortgage market or merely replace flows that otherwise would have occurred. A number of additional innovations are being proposed or instituted. New FHLB regulations allow member thrift institutions to issue large-denomination negotiable certificates of deposit; however, there is little evidence of aggressive bidding for funds by the thrift institutions. Most recently, the FHLB Board has proposed regulations that allow variable-rate mortgages, and legislation has just been passed in the Congress to raise the ceiling on Government-insured mortgages to $45,000. In addition, one large mutual savings bank, following the lead of several bank holding companies, has recently issued a variable-rate bond to raise funds.

PRICE DEVELOPMENTS

Inflation remains severe. According to the latest data, prices of wholesale industrial and consumer nonfood commodities have continued to advance at extremely rapid rates. As the termination date of price controls recedes further into the past, it becomes increasingly difficult to attribute price hikes to a post-controls bulge. Instead,

Chart III

SPOT PRICES FOR SELECTED AGRICULTURAL COMMODITIES



Source: The Wall Street Journal.

recent price increases appear to be the result of current and past rises in labor costs and in raw materials prices. Moreover, a resurgence in feed grain prices, which has already become visible at the spot and wholesale levels, suggests that there will be large increases in retail food prices in coming months.

Seasonally adjusted consumer prices climbed at a 9.1 percent annual rate in July, only the second time this year that the rate of increase was below 10 percent. However, almost all of the slowdown was the result of an outright decline in retail food prices, which may shortly be reversed. Apart from food prices, consumers continued to face stiff price hikes. Prices of consumer nonfood commodities, for instance, climbed at nearly a 16 percent annual rate in July, up slightly from the 15 percent rate of advance averaged in earlier months of the year. A sharp rise in the cost of medical care and household services resulted in a 12.7 percent increase in services prices.

In July, wholesale prices skyrocketed at a seasonally adjusted annual rate of 44.6 percent. With large increases being recorded in all sectors, the advance was the most rapid since August 1973. Industrial wholesale prices climbed at a 32.9 percent annual rate in July, or 6 percentage points higher than in the previous month. Higher materials costs contributed significantly to the increase, as prices for paper and metals registered substantial gains. In addition, previous slowdowns in the rate of growth in wholesale fuel and power prices were reversed. In July, energy prices rose at a 68.7 percent annual rate, bringing the increase over the last year to nearly 65 percent. Meanwhile, wholesale farm and feed prices rose at a 77.3 percent annual rate in July, thereby reversing four consecutive monthly declines. While most farm products prices moved higher, increases in prices of livestock and feed grains were particularly large. Early in July, cattlemen countered previous declines in beef prices by temporarily reducing marketings. At about the same time, prices for feed grains began to increase as forecasts of a record corn crop appeared less certain.

Over the four weeks ended August 27, the Bureau of Labor Statistics spot price index of basic commodities declined by 4.5 percent. Prices of raw industrial commodities fell, primarily as a result of a weakening in the price of scrap copper. Prices of raw foodstuffs posted declines over the last two weeks of August after advancing for eight of the previous nine weeks. Over this period, the increases in spot prices of feed grains were especially large. A severe drought which gripped the nation's Corn Belt caused the Agriculture Department to revise its estimates for the 1974 corn crop from 6.7 billion bushels to 5 billion, with smaller year-over-year declines in the projected 1974 crops of soybeans and other grains. In reaction, prices of corn and related feed grains soared. During July and the first part of August, for example, spot corn rose by 72 cents per bushel to $3.74 per bushel, although most recently corn prices have weakened somewhat (see Chart III). With near and distant future prices rising by large amounts, higher prices for several final products seem almost certain. Pork, poultry, eggs, and milk especially will be affected, as total feed costs including protein supplements rise. Despite the higher feed prices, however, beef prices may not climb significantly because of increased marketings of the large number of cattle on pasture.

The Money and Bond Markets in August

Money market rates were relatively steady in August, but yields on Treasury obligations increased until the closing days of the period. Heavy new supplies and burdensome financing costs led to a steep rise in Treasury bill rates as dealers found their inventories heavy. Disappointment over the absence of investments by oil-producing nations in special Treasury issues also weighed heavily on the market. Even the unprecedented response by small investors to the two 9 percent notes auctioned as part of the August refinancing failed to bolster market sentiment. Thus, later in the month when the Treasury announced further bill offerings, rates on new bills in the weekly and monthly auctions advanced to record levels. In the closing days of the month, however, yields generally declined against a background of slightly lower money market rates.

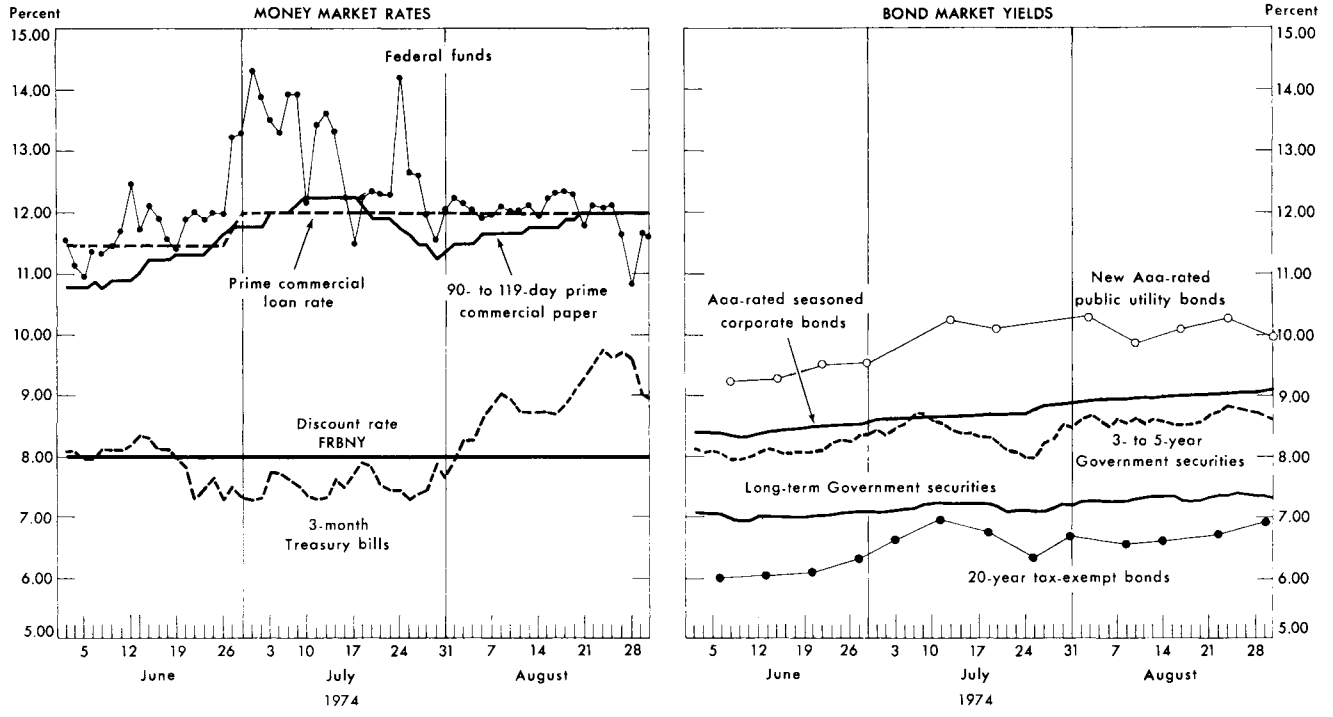
Prices of corporate and tax-exempt securities were also under pressure over much of August. However, a large number of postponements kept new supplies relatively light. Investor demand was modest for all new issues except those of the highest quality. Preference for telephone company issues relative to electric utility issues widened yield spreads between the two and prompted issuers to reduce the size and maturity of most electric utility issues.

During the month, the Board of Governors of the Federal Reserve System announced revisions in the money stock measures to reflect new bench-mark data for nonmember banks, available from the April 1974 call report. The revisions cover the first seven months of this year. The first-quarter growth of the seasonally adjusted narrow money stock (M_1)—private demand deposits adjusted plus currency outside banks—was adjusted downward from an annual rate of 7.1 percent to a 5.6 percent annual rate and in the second quarter to 6.4 percent from 7 percent. Smaller downward adjustments were announced for the growth of the broad money supply (M_2), which includes time and savings deposits other than large negotiable certificates of deposit (CDs). According to preliminary data, the narrowly defined money supply continued to grow at a sluggish pace during the four statement weeks ended August 21, while the broad money supply advanced at a slightly quicker pace over the same period relative to its average level in the first four statement weeks in July. The volume of CDs declined in the four statement weeks ended August 21, the first such decrease since March of this year.

THE MONEY MARKET, BANK RESERVES, AND THE MONETARY AGGREGATES

Rates on most money market instruments were relatively steady in August (see Chart I). The effective rate on Federal funds hovered close to 12 percent through most of the period but was somewhat under that level in the closing days. For the month as a whole, it averaged 12.01 percent, down 91 basis points from the record level of 12.92 percent set in July. In the secondary market for CDs, rates on three-month issues traded also around 12 percent in the first two weeks of the period but gradually edged up about 12½ percent near the month end. Dealers in prime commercial paper gradually but persistently raised their offering rates for all maturities throughout the month, as the volume of nonbank-related commercial paper rose significantly. At the close of the month, the rate on 90- to 119-day commercial paper reached 12 percent, an increase of ½ percentage point from its level at the end of July. As commercial paper rates rose, the formula guidelines of several commercial banks that tie their prime lending rates to past market rates called for prime rates in the range of 12.6 percent to 12.8 percent late in the month. However, these banks kept their prime rates at 12 percent as did most other major banks. In contrast to the movement of rates on other money market instruments, rates on bankers' acceptances declined slightly over the month, and trading volume in bankers' acceptances was slightly less than July's record level. Meanwhile, the volume of bank-related commercial paper dropped sharply during the month. The decline apparently reflected the paydown of maturities by bank holding com-

Chart I
SELECTED INTEREST RATES
June - August 1974



Note: Data are shown for business days only.

MONEY MARKET RATES QUOTED: Prime commercial loan rate at most major banks; offering rates (quoted in terms of rate of discount) on 90- to 119-day prime commercial paper quoted by three of the five dealers that report their rates, or the midpoint of the range quoted if no consensus is available; the effective rate on Federal funds (the rate most representative of the transactions executed); closing bid rates (quoted in terms of rate of discount) on newest outstanding three-month Treasury bills.

BOND MARKET YIELDS QUOTED: Yields on new Aaa-rated public utility bonds are based on prices asked by underwriting syndicates, adjusted to make them equivalent to a standard Aaa-rated bond of at least twenty years' maturity; daily averages of yields on seasoned Aaa-rated corporate bonds; daily averages of yields on long-term Government securities (bonds due or callable in ten years or more) and on Government securities due in three to five years, computed on the basis of closing bid prices; Thursday averages of yields on twenty seasoned twenty-year tax-exempt bonds (carrying Moody's ratings of Aaa, Aa, A, and Baa).

Sources: Federal Reserve Bank of New York, Board of Governors of the Federal Reserve System, Moody's Investors Service, Inc., and The Bond Buyer.

panies that sold floating-rate notes late in July and in August.

According to preliminary data, the narrow money supply continued to grow sluggishly in August while the broad money supply advanced at a slightly more rapid pace than in July. For the four weeks ended August 21, M_1 grew at a 2.8 percent seasonally adjusted annual rate relative to its average of the first four statement weeks of July. The growth of M_1 from the corresponding period ended thirteen weeks earlier to the four weeks ended August 21 was 4.6 percent at an annual rate (see Chart II). M_2 advanced at a seasonally adjusted annual rate of 7 percent in the four weeks ended August 21 over the preceding four-week period. In contrast to the money stock measures, the growth of the adjusted bank credit proxy decelerated to 5.6 percent. This slower growth of the proxy can be attributed to the decline in the seasonally adjusted volume of large CDs outstanding. CDs outstanding decreased at a 4.6 percent annual rate in the four weeks ended August 21. This marks the first decline in the use of large CDs since March of this year. In comparison to the four-week average of a year earlier, large CDs were up 54.2 percent in the four weeks ended August 21. Member bank borrowings from the Federal Reserve averaged $3.3 billion during August (see Table I), about the same as in the previous month.

On August 21, the Board of Governors of the Federal Reserve System proposed an amendment to its regulations

governing member bank borrowings that would permit application of a special discount rate to member banks needing exceptionally large assistance over a prolonged period. Under the proposal, the special discount rate would ordinarily be higher than the basic discount rate (currently 8 percent) but would not exceed the rate established for emergency loans to nonmember banks, which is now 10 percent. Comments on the Board's proposal will be received through September 23.

THE GOVERNMENT SECURITIES MARKET

Yields on Treasury issues rose substantially in August, largely in response to the depressing effect the gloomy price statistics had upon market participants and the substantial volume of new bill offerings. At the same time, many participants were disappointed that the Treasury did not attract funds from the oil-producing nations into special issues. This increased market apprehension over the large impending needs of the Treasury and caused bill rates in particular to soar until late in the month.

As the month began, prices of outstanding longer term issues fell sharply in an adjustment to the terms of the August refunding. Weakness in the bill market and prospects for a large supply of new Federal Home Loan Bank debentures contributed to the concern. On Tuesday, August 6, the Treasury auctioned $2.25 billion of 33-month 9 percent notes as part of the August refunding package. Interest in this issue, particularly from small investors, was unprecedented, and the average issuing rate was set at 8.59 percent. Interest in the six-year 9 percent note offered the following day was also good, and a yield of 8.75 percent was established on the $1.75 billion issue. Noncompetitive allotments for the two issues amounted to $2.2 billion, or 55 percent of the total volume. This was the largest subscription by small investors to note auctions since the Treasury began using the auction technique regularly for note issues in November 1970. Besides the attractive 9 percent coupon of the two notes, part of the response by small investors was attributed to the availability of the $1,000 minimum accepted denomination.

Although market participants' reactions were buoyed by the response of small investors to the new notes, news of the rapid rise in wholesale prices in July dampened market enthusiasm for $400 million of 24¾-year 8½ percent bonds, the final part of the refinancing. In restrained bidding, the average yield was set at 8.63 percent. However, as the month progressed, underlying demand for the refunding issues was evident, permitting dealers to reduce their inventories of these issues at stable prices. For the month as a whole, yields on three- to five-year Treasury securities were 3 to 21 basis points higher and yields on longer term Treasury securities were 6 to 38 basis points higher.

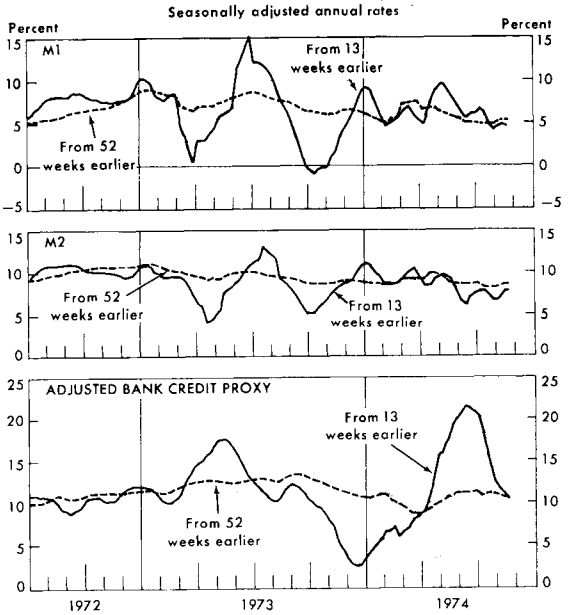
A large volume of additional supplies of Treasury bills came to the market in August, enlarging dealer inventories at a time when financing costs were burdensome. This sent bill rates soaring over much of the month. With rates on other short-term market instruments changing relatively little during the period, the differential between these and bill rates returned to a more normal relationship. In the two preceding months, the differential between these rates widened sharply, as investor preference for quality together with demand from foreign official institutions tended to insulate bill rates from the pressures felt in other markets.

The period began with an auction of $1.5 billion of 44-day tax anticipation bills on August 1. Demand

Chart II

CHANGES IN MONETARY AND CREDIT AGGREGATES

Seasonally adjusted annual rates



Note: Growth rates are computed on the basis of four-week averages of daily figures for periods ended in the statement week plotted, 13 weeks earlier and 52 weeks earlier. The latest statement week plotted is August 21, 1974.

M1 = Currency plus adjusted demand deposits held by the public.

M2 = M1 plus commercial bank savings and time deposits held by the public, less negotiable certificates of deposit issued in denominations of $100,000 or more.

Adjusted bank credit proxy = Total member bank deposits subject to reserve requirements plus nondeposit sources of funds, such as Euro-dollar borrowings and the proceeds of commercial paper issued by bank holding companies or other affiliates.

Source: Board of Governors of the Federal Reserve System.

Table I

FACTORS TENDING TO INCREASE OR DECREASE MEMBER BANK RESERVES, AUGUST 1974

In millions of dollars; (+) denotes increase and (—) decrease in excess reserves

Factors	Changes in daily averages—week ended				Net changes
	Aug. 7	Aug. 14	Aug. 21	Aug. 28	
"Market" factors					
Member bank required reserves	+ 332	— 109	— 127	+ 31	+ 127
Operating transactions (subtotal)	+ 883	+ 163	—1,544	— 237	— 735
Federal Reserve float	+ 298	— 77	— 50	— 53	+ 118
Treasury operations*	+ 501	+ 887	— 572	— 740	+ 76
Gold and foreign account	+ 19	+ 5	— 159	+ 121	— 14
Currency outside banks	— 253	— 521	— 653	+ 512	— 915
Other Federal Reserve liabilities and capital	+ 318	— 131	— 110	— 77	—
Total "market" factors	+1,215	+ 54	—1,671	— 206	— 608
Direct Federal Reserve credit transactions					
Open market operations (subtotal)	— 588	— 162	+2,002	— 145	+1,107
Outright holdings:					
Treasury securities	+ 121	— 162	+1,234	— 74	+1,119
Bankers' acceptances	+ 6	—	+ 16	+ 36	+ 58
Federal agency obligations	— 4	—	—	—	— 4
Repurchase agreements:					
Treasury securities	— 383	—	+ 435	— 133	— 81
Bankers' acceptances	— 130	—	+ 78	+ 37	— 15
Federal agency obligations	— 198	—	+ 239	— 11	+ 30
Member bank borrowings	— 607	— 43	+ 397	+ 96	— 157
Seasonal borrowings†	+ 11	— 14	+ 6	— 5	— 2
Other Federal Reserve assets‡	+ 27	+ 63	— 610	+ 231	— 289
Total	—1,166	— 142	+1,789	+ 182	+ 663
Excess reserves‡	+ 49	— 88	+ 118	— 24	+ 55

	Daily average levels				Monthly averages§
Member bank:					
Total reserves, including vault cash‡	36,921	36,942	37,187	37,132	37,045
Required reserves	36,688	36,797	36,924	36,893	36,826
Excess reserves	233	145	263	239	220
Total borrowings	3,083	3,040	3,437	3,533	3,273
Seasonal borrowings†	174	160	166	161	165
Nonborrowed reserves	33,838	33,902	33,750	33,599	33,772
Net carry-over, excess or deficit (—)‖	122	118	109	165	129

Note: Because of rounding, figures do not necessarily add to totals.
* Includes changes in Treasury currency and cash.
† Included in total member bank borrowings.
‡ Includes assets denominated in foreign currencies.
§ Average for four weeks ended August 28, 1974.
‖ Not reflected in data above.

stemmed largely from investors who swapped outstanding issues of similar maturity for these new bills. The average issuing rate for the new bills was set at 9.66 percent and, following this auction, rates on outstanding shorter maturity bills rose appreciably.

Expectations of additional Treasury financing beyond the $200 million increment to each of the weekly auctions weighed heavily upon the market, as did concern that the refunding would siphon small investor interest away from the retail bill market. In the first weekly auction of the month, three- and six-month bill rates rose 81 and 61 basis points, respectively, above their levels in the last auction of July. In the ensuing auctions, gloomy crop forecasts, the spurt in wholesale prices in July, and official statements concerning the tenacity of inflation generated restrained bidding. When expectations that a new bill issue would be marketed were confirmed, bill rates escalated further. In the monthly auction of 52-week bills on August 21, the average issuing rate was 9.56 percent (see Table II), 114 basis points above the historic peak established in the May 2 auction. In the weekly bill auction on August 26, record average rates were set on the three- and six-month issues of 9.91 and 9.93 percent, respectively. By August 28 the atmosphere had begun to brighten against the background of slightly lower money market rates. Bidding was rather aggressive in the auction held that day for $2 billion of 299-day bills. The average issuing rate was 9.77 percent. In the final auction of weekly bills, held on August 30, the average rates on three- and six-month bills receded to 9.17 and 9.28 percent, respectively.

Prices of Federal agency obligations eroded over the month amid relatively light new issue activity. Nevertheless, dealer inventories remained large, while expectations of future heavy financing coupled with the surge in yields on Treasury securities weakened the agency market. On August 9, the Federal Home Loan Banks marketed $1.8 billion of new securities, paying rates of 9.20 percent on eighteen-month bonds, 9.15 percent on 3¼-year bonds, and 9.10 percent on 4¼-year bonds. Interest for this issue was very good. One week later, the Banks for Cooperatives (COOP) and the Federal Intermediate Credit Banks (FICB) marketed $1.23 billion of securities with yields of 9.85 percent for the six-month COOP bonds and 9.80 percent for the nine-month FICB bonds. At the close of the period, the Federal National Mortgage Association sold $1.6 billion of bonds. The offering consisted of $700 million of 10 percent bonds due June 10, 1976, $600 million of 9.80 percent bonds due June 11, 1979, and $300 million of 9.70 bonds due September 10, 1981. The issues were well received.

THE OTHER SECURITIES MARKETS

The corporate bond market was characterized in August by a modest supply of new issues and light trading activity. The light volume was balanced by a lack of investor demand, particularly for longer maturities, as bleak price statistics prompted investors to be cautious about committing their funds to long-term investments. A significant volume of scheduled issues was postponed, and this weighed upon market sentiment given the realization that the large capital needs of industry would have to be financed eventually. Issuers that did not postpone their financing generally confined their offerings to shorter maturities and made substantial yield concessions to sell their securities.

The month began with a reoffering of $130 million of A-rated five-year debentures yielding 11 percent. This issue, which did not receive any valid bids when previously offered with a coupon rate of 11⅝ percent and a thirty-year maturity, sold quickly. On the same day, an Aa-rated issue of another electric utility was successfully sold when it was priced to yield 10.75 percent in thirty years, 1⅜ percentage points above the last such offering in June. Investor preference for quality issues helped the Mountain States Telephone and Telegraph Company market $175 million of Aaa-rated bonds priced to yield 9.82 percent in thirty-eight years. Although this yield was 17 basis points above a similar Bell issue marketed three weeks earlier, it was almost a percentage point below the most recently marketed non-Bell issue. On August 14, the yield for new medium-grade electric utility bonds reached the unprecedented height of 12.13 percent when Boston Edison marketed a five-year 12½ percent issue. The high yield was primarily the result of a substantial downgrading of the company's rating to Baa. Late in the month when syndicate price restrictions were removed, the issue fell in price to produce a yield close to 13 percent.

New issues in the corporate bond market in August also included a substantial volume of floating-rate notes. Following in the wake of the $650 million issue in July by Citicorp, six additional companies—four of which were commercial bank holding companies—marketed a combined $600 million of the floating-rate securities. The basic features of these notes are similar: a fixed interest rate for a specified period and later a return based upon the three-month Treasury bill rate plus some premium, substantial call protection, and periodic redemption of the securities at par after a certain minimum interval. An exception to the latter provision was provided by the New York Bank for Savings offering of seven-year notes which are not redeemable before maturity. These notes, in contrast to the others, provide an interest rate floor of 8 percent. Investor interest in most of the floating-rate notes seemed to wane after the positive reaction to the notes issued by Citicorp. After observing the modest investor response to the $40 million New York Bank for Savings offering and the sharp price decline after syndicate price restrictions were removed from the Chase Manhattan Corporation issue marketed in the beginning of the period, both Crocker National Corporation and Continental Illinois Corporation postponed their scheduled offering dates to later in the month. In addition, Crocker reduced the amount to be offered from $75 million to $40 million, while Mellon National Corporation increased its initial premium from 9.70 percent to 10 percent and decreased its volume to $90 million from $100 million. In the final floating-rate issue of the month, Continental Illinois Corporation's 10 percent notes were sold at a price to yield 10.30 percent initially despite a reduction in the total volume from $125 million to $80 million.

In the market for tax-exempt securities the volume of new issues was smaller than in the past several months, partly because of statutory interest limitations which constrained scheduled offerings and also as a result of the lackluster receptions accorded several highly rated offerings. The modest supply of new issues kept prices from deteriorating at as fast a pace as in other capital markets. The month began with an $85 million utility improvement issue rated Aaa, with returns ranging from

Table II

AVERAGE ISSUING RATES AT REGULAR TREASURY BILL AUCTIONS*

In percent

Maturity	Weekly auction dates—August 1974				
	Aug. 5	Aug. 12	Aug. 19	Aug. 26	Aug. 30
Three-month	8.505	8.763	8.846	9.908	9.167
Six-month	8.660	8.719	8.899	9.930	9.283
	Monthly auction dates—June-August 1974				
	June 26		July 24		Aug. 21
Fifty-two weeks	8.256		7.836		9.564

* Interest rates on bills are quoted in terms of a 360-day year, with the discounts from par as the return on the face amount of the bills payable at maturity. Bond yield equivalents, related to the amount actually invested, would be slightly higher.

5.50 percent in 1976 to 7.00 percent in 1997. This issue encountered a lack of investor interest and set the tone for the balance of the month. At midmonth two additional offerings, though highly rated, sold slowly. The larger of the two issues, $50 million of Aaa-rated general obligation bonds priced to yield from 5.40 percent in 1975 to 6.00 percent in 1993 was 20 percent unsold a week later. At this time, a similarly rated issue priced about 5 basis points higher than this issue also had difficulty attracting investors. Given the restrained reception accorded most issues, the weekly volume of scheduled offerings became smaller as the month progressed. On August 29, The Bond Buyer index of municipal yields was 6.91 percent, 21 basis points above the level on August 1. The Blue List of dealers' advertised inventories fell $95 million to $360 million over the month.

Rating the Financial Condition of Banks: A Statistical Approach to Aid Bank Supervision

By DAVID P. STUHR AND ROBERT VAN WICKLEN*

One of the most important techniques used by bank regulatory authorities in supervising individual commercial banks and evaluating their financial condition is the on-site examination. Over the years, on-site examinations have yielded valuable information on a bank's assets, capital, management, the soundness of its banking practices, and its overall success in serving the community. Such information is used by supervisory personnel at each Reserve Bank to assign a summary rating to the member banks in each Reserve District. The rating is an overall indication of the bank's condition based on the information available from examination reports.

This article reports on an approach that applies statistical techniques for capturing the more important objective and subjective factors that enter the process which Federal regulatory authorities use to examine commercial banks and rate their condition. The project develops a "scoring" technique that provides a measure of the condition of each member bank relative to other member banks in the Second Federal Reserve District. A long-term goal of this project is to identify banking factors that may be used to signal changes in a bank's condition from data available between field examinations.

GENERAL SUPERVISORY CRITERIA FOR BANK EXAMINATION RATINGS

In rating the overall condition of a bank, supervisory personnel[1] consider three major factors—i.e., the quality of the bank's assets, the adequacy of its capital, and the caliber of its management. The quality of assets is assessed through a careful analysis of the bank's portfolio during on-site examinations. Those loans, investments, and other assets that, in the judgment of the examiner, involve more than normal risk or have doubtful or loss characteristics are labeled classified assets. Such assets and other loans specially mentioned by the examiners comprise those assets whose quality is below the normal standard of bank assets.

In evaluating a bank's condition, the volume and distribution of those types of assets involving more than normal risk are generally measured in relation to a bank's gross capital funds. The higher the ratio of classified and specially mentioned assets to a bank's gross capital, the greater is the degree of risk to the organization. Capital[2]

* David P. Stuhr is an economist in the Banking Studies Department of the Federal Reserve Bank of New York and an Associate Professor of Finance at Rutgers University. Robert Van Wicklen is an assistant economist in the Banking Studies Department. The authors wish to acknowledge the substantial contribution of Leon Korobow, Manager and George R. Juncker, economist in the Banking Studies Department, to the discriminant project and to this article, as well as the valuable programming assistance provided by Christopher Kell of the Data Services Function of the Federal Reserve Bank of New York.

[1] The Federal Reserve has authority to examine all members of the Federal Reserve System but, as a matter of policy and practice, conducts on-site examinations of only state-chartered member banks. The Comptroller of the Currency supervises and examines all national banks. This study is based on data obtained from the reports of examination for both state member banks and national banks in the Second Federal Reserve District.

[2] Capital includes capital notes and debentures, equity, surplus, undivided profits, reserves for contingencies, and other reserves. Capital notes and debentures, however, represented only a minor portion of the total capital of the banks studied in the years covered by this analysis.

adequacy, therefore, is measured in relation to a bank's ability to absorb losses on its loans or investments as a result of defaults or forced sales at less than original cost.

The caliber of management generally is assessed by supervisory personnel on the basis of the bank's ability to provide safe and competent leadership. An important indication of such leadership is a bank's profitability, but the overall financial condition of the bank also enters into the judgment of examiners in assessing the quality of a bank's management.

THE APPROACH AND THE VARIABLES USED FOR ESTIMATING SUPERVISORY RATINGS

THE SUMMARY RATINGS. In the examination and analysis of each bank, supervisory personnel at each Reserve Bank assign one of four possible numerical summary ratings. They vary from a high of "1" to a low of "4" and depend on an analysis of the quality of the bank's assets, the adequacy of its capital, and the caliber of its management, based on information obtained from the examination report. All banks in category "1" are considered financially strong. This classification encompasses banks that have proven their ability to perform under a wide range of economic and competitive conditions, as well as those banks that have not been fully tested in a competitive environment but whose assets are comprised of a large percentage of loans or investments that entail little or no risk (e.g., United States Government or Government-guaranteed obligations). Banks rated "2" are institutions whose asset quality, capital adequacy, and management capabilities are not quite as strong overall as banks in category "1" but whose financial underpinnings are clearly sound. Banks having summary ratings of "3" and "4" are regarded as weak.

For purposes of this study, banks rated "1" were considered high-rated banks, banks with summary ratings of "3" and "4" were grouped together to form a sample of low-rated banks, and banks with "2" ratings were considered intermediate between the two groups. Using a computer program, a statistical technique known as discriminant analysis then was employed to analyze variables that took systematically different values for high-rated and low-rated banks. The relevant variables were combined into an equation or discriminant function whose weights, or coefficients, computed for each variable maximized the difference between the average score of the high-rated banks and the average score of the low-rated banks, as obtained from the function.

THE EXPLANATORY VARIABLES. In the initial stages of this study, the examiners' primary measure of ***asset quality***—i.e., the ratio of classified and specially mentioned assets to total bank capital—was used. While this measure performed as expected, further investigation revealed that the accuracy of the classifications obtained from the discriminant function could be improved through the use of an alternative measure. This alternative measure was the sum of classified loans, securities, and other assets plus one half of specially mentioned loans, all divided by total loans and securities.

Various measures of ***capital adequacy*** similar to those calculated by Federal supervisory personnel were employed initially, but generally they did not substantially improve the ability of the function to distinguish between banks with high and low summary ratings. After experimentation with a number of substitute measures of capital adequacy, we found that the ratio of capital to total assets was most effective in enabling the discriminant function to classify the banks correctly according to their respective summary ratings.

The intangible nature of ***management quality*** required that its influence on the overall summary ratings of commercial banks be indirectly introduced into the discriminant analysis through three proxy variables measuring management performance. A widely known and generally accepted source of such information is the operating ratios published each year by the Federal Reserve. These ratios reflect the ongoing results of management decision making. Two of them—net income before taxes, and dividends, each as a percentage of total capital—contributed to the discriminant function's ability to distinguish between the two groups of banks. In addition to these operating ratios, the ratio of borrowings to total capital was found to aid the discriminant function in capturing aspects of management quality that influence supervisory ratings. In general, the competence of management would be expected to be related positively to the income and dividend variables and negatively to borrowings. However, within limits, a bank's total borrowings may rise in response to stringent credit conditions without any adverse implications for management performance.

Our investigations suggested that ***bank size,*** as measured by total deposits, contributed to the ability of the function to classify banks according to their summary ratings. Large organizations often are better able to attract competent management and are in a position to diversify their assets and spread portfolio risks.

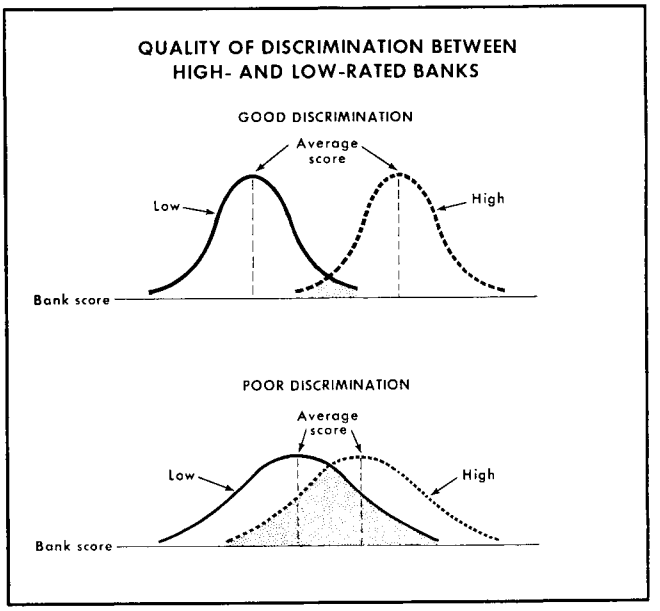
In addition to size, a bank's ***organizational structure*** is also relevant to bank performance because differences in structure might be expected to result in differences in costs. Given two banks of equal size, one a unit bank and the other having several offices, the latter would be ex-

pected to have a higher cost structure, assuming all other factors are held constant.[3] Ideally, the number of banking offices would serve the purpose of capturing differences in cost attributed to organizational structure. However, the required branch data were not compiled as part of the information available for this study and, consequently, the ratio of net occupancy expense to net income was employed as an alternative to the number of offices.

Finally, the ***loan-asset ratio*** was included to capture differences in ratings that reflected the allocation of a bank's portfolio between relatively higher earning, higher risk loan assets and lower earning, lower risk Government securities and liquidity reserves. Holding all other variables constant, the lower the loan-asset ratio the lower the risk associated with the bank's total assets.[4]

APPLYING DISCRIMINANT ANALYSIS[5]

Discriminant analysis involves the simultaneous study of the effects of a number of variables and, in this study, results in a numerical score for each bank in the sample based on the particular values of the variables enumerated above.[6] The degree of discrimination between high-rated and low-rated banks is evaluated by measuring the difference between the average scores of the two groups as well as by how closely the scores are clustered around their respective group averages. The chart illustrates this concept of the quality of discrimination. It indicates that good discrimination occurs when (1) the average scores are widely separated and (2) the individual scores are tightly distributed around their respective group averages. Then the scores of the two groups would have little or no overlap.



Several measures of the quality of the discriminant equation can be calculated. A numerical measure of the likelihood that the equation has successfully divided the sample into two distinct groups is one measure.[7] Another measure is the likelihood of the equation misclassifying a particular bank; this measure provides an indication of the degree of confidence that may be placed in the function.[8]

[3] Other researchers have found that operating costs of banks rise as a result of branching. See, for example, Frederick W. Bell and Neil B. Murphy, *Costs in Commercial Banking: A Quantitative Analysis of Bank Behavior and Its Relation to Bank Regulation*, Research Report No. 41 (Federal Reserve Bank of Boston, 1968) or George J. Benston, "Economies of Scale and Marginal Costs in Banking Operations", *The National Banking Review* (June 1965).

[4] The data compiled for this study did not include information on the banking markets of individual banks or historical information on the various bank ratios. These types of variables, therefore, were not employed.

[5] This section is based on material found in J. Johnston, *Econometric Methods* (New York: McGraw Hill, 1972), pages 334-40; C. Kell, "Discriminant Analysis" (Federal Reserve Bank of New York, Research Computer Division, Statistics Section, 1970); G. W. Ladd, "Linear Probability Functions and Discriminant Functions", *Econometrica* (October 1966), pages 873-85; and D. G. Morrison, "On the Interpretation of Discriminant Analysis", *Journal of Marketing Research* (May 1969), pages 156-63.

[6] Such techniques have been used by other researchers to detect potential weakness or failure. Altman attempted to predict business bankruptcy, while Meyer and Pifer studied bank failures. Dince and Fortson developed a discriminant function to predict bank capital adequacy, which represents only one aspect of the more complex composite rating under study in this article. *Cf.*, Edward I. Altman, "Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy", *The Journal of Finance* (September 1968), pages 589-609; Robert R. Dince and James C. Fortson, "The Use of Discriminant Analysis to Predict the Capital Adequacy of Commercial Banks", *Journal of Bank Research* (Spring 1972), pages 54-62; Paul A. Meyer and Howard W. Pifer, "Prediction of Bank Failures", *The Journal of Finance* (September 1970), pages 853-68.

[7] The measure is the F statistic, and it is analagous to the F statistic computed for linear regression analysis. If the F statistic is high, it indicates that there is a significant difference between the group averages.

[8] Two probabilities for misclassifying an observation can be estimated: (a) the probability of classifying as low a bank whose summary rating was high and (b) the probability of classifying as high a bank whose summary rating was low.

The estimated functions reported below were obtained by including in the data for the high-rated group only the banks that had the highest summary ratings consistently over the entire period from 1964 through 1970. This procedure was used to insure that the data were strongly representative of the characteristics of banks in this group, as defined by the examination process. Because of the small number of banks with low summary ratings in any given year, virtually all of the banks in this category were included in the sample used to estimate the functions. Thus, the sample of banks that was held out was not a randomly selected sample but represented banks that received an intermediate rating at least once during the period 1964-70.[9]

Once the function was computed, a scale adjustment was made so that negative values placed a bank in the low-rated group and positive values placed it in the high-rated group. The scores for the banks in the study then were calculated and ranked in descending order. Scores for those banks that were held out of the original sample were computed by using the weights in the discriminant function, together with the values of the variables in the function. If the function discriminates well, the banks that were accorded high summary ratings should appear near the top of the ranking as a result of having high positive scores, and the banks with low summary ratings should be at the bottom of the ranking as a result of having relatively large negative scores. The banks with intermediate summary ratings should score in between. The position of a bank in the ranking, together with changes in its position over time, should indicate the relative condition of the bank as well as changes in its condition over time.[10] These results were compared with the known rating, thereby providing a check on the accuracy of the function.

Data for this study were available on state-chartered member and national banks in the Second Federal Reserve District. Because of certain limitations, it was not possible to combine all the banks in a single sample. Consequently, four independent functions were estimated: separate ones for state member banks for 1967 and for 1968 and another two for national banks, one for each of these same years. The sample characteristics of the four functions are given in Table I.

Table I

SAMPLE BANK CHARACTERISTICS

Category	State member banks		National banks	
	1967	1968	1967	1968
	Banks included for estimating function			
High-rated banks	26	26	60	60
Low-rated banks	6	5	18	13
	Banks included in holdout group			
High-rated banks	23	22	10	9
Intermediate banks	45	48	22	28
Low-rated banks	1	0	0	0
Total banks in study	101	101	110	263
Banks in Second District	111	108	271	110

The sample of state-chartered member banks was comprised of all the banks for which complete data were available. Virtually all the national banks with low summary ratings or consistently high ratings were included in the national bank sample. However, many national banks that had at least one intermediate summary rating were omitted from the "holdout" group of banks to keep the sample size manageable.

STATISTICAL PROPERTIES OF THE ESTIMATED FUNCTIONS. The properties of the discriminant functions computed for the years 1967 and 1968 for national and state-chartered member banks are summarized in Table II. The high F statistics indicate significantly different average scores. Probabilities of misclassification range from about 0.1 percent to about 7 percent, indicating only a small overlap in the respective distributions of scores for banks having high or low summary ratings.[11]

A further check on the quality of the discrimination is possible by observing the pattern of the numbers in Table

[9] This classification procedure does not strictly comply with the requirement of discriminant analysis, which specifies that each observation be uniquely assigned to a particular group. Program limitations restricted us to the analysis of two groups and necessitated that we exclude intermediate banks in calculating the function.

[10] It should be recognized that such changes in condition cannot be detected by discriminant analysis, unless they become manifest in changes in the variables included in the function.

[11] The signs of the coefficients of the eight variables estimated in the four equations were all correctly predicted by the model, with the exception of two relatively minor variables. The coefficients of the equations are omitted from this article, but a statistical appendix containing these equations will be supplied by the authors on request.

III, which matches the predicted against the actual ratings for all the high- and low-rated banks used in computing the functions. A function can be considered satisfactory if (1) virtually all the banks that were actually accorded high summary ratings also achieved positive discriminant scores from the function with few, if any, receiving negative discriminant scores and (2) virtually all the banks with low summary ratings achieved negative scores from the discriminant function with few, if any, of these banks receiving positive discriminant scores. If discrimination were perfect, the diagonal terms moving from the upper left-hand box to the lower right-hand box in each square would comprise all the observations, while the other two boxes would contain zeros. As can be seen from Table III, only one of the state banks used to compute the function was misclassified—it was one of the five banks that had low summary ratings in 1968; the misclassified bank was accorded a positive discriminant score by the function estimated for 1968. In addition, two banks in the holdout group were misclassified. Both were banks with high summary ratings, but they received negative scores from the discriminant function. During these two years, the functions correctly classified 106 out of 109 state member banks having high or low ratings.

For the sample of national banks, three that had low summary ratings were classified as high by the functions, one in 1967 and two in 1968. Further, in the holdout sample, one bank that had a high summary rating in 1968 was classified as low by the discriminant function. Overall, however, 166 out of the 170 national banks with high or low ratings were classified correctly over the two years. Thus, the fit of the discriminant functions to the process of assigning summary ratings was quite good.

Table III

ACTUAL RATINGS VERSUS RATINGS OBTAINED FROM THE DISCRIMINANT FUNCTIONS*

Actual summary ratings	Ratings predicted by the function			
	1967		1968	
	High	Low	High	Low
State member banks				
Banks used in computing the function:				
High	26	0	26	0
Low	0	6	1	4
Banks in the holdout group:				
High	22	1	21	1
Low	0	1	0	0
National banks				
Banks used in computing the function:				
High	60	0	60	0
Low	1	17	2	11
Banks in the holdout group:				
High	10	0	8	1
Low	0	0	0	0

* Evaluates only those banks with high or low summary ratings.

Table II

SUMMARY OF THE PROPERTIES OF THE FOUR DISCRIMINANT FUNCTIONS

Statistical characteristics	State member banks		National banks	
	1967	1968	1967	1968
F statistic	14.39*	10.23*	20.48*	27.86*
Probability of the function giving a high score to a bank with a low summary rating†	0.60	1.35	7.06	1.84
Probability of the function giving a low score to a bank with a high summary rating†	0.12	0.21	1.62	0.32

* Statistically significant at the 99 percent confidence level.
† In percent.

PRELIMINARY IMPLICATIONS OF THE RESULTS

ANALYSIS OF MISCLASSIFICATIONS OF HIGH- AND LOW-RATED BANKS. The potential usefulness of the discriminant function is suggested by an analysis of the ratings of banks that were misclassified by the functions. Two state-chartered member banks in the holdout group—both with high summary ratings—were misclassified by the functions as low performers, one in 1967 and one in 1968. Both banks subsequently received an intermediate rating, indicating that the functions may have been providing some advance indication of a decline in rating. The only state-chartered member bank accorded a low summary rating and misclassified as high by the function in 1968 was barely in the high category of discriminant scores. It was merged out of existence the following year, thus making it impossible to determine whether the summary rating of the bank actually improved.

One national bank with a low summary rating in 1967 achieved a discriminant score which placed it at the bottom of the range that included high-scoring banks. Subsequently, in 1968, that bank was accorded an actual summary rating of "2" (intermediate) which it maintained thereafter. In retrospect, it might appear that the discriminant function was detecting some improvement in the bank's performance.

In contrast, one of two national banks that achieved marginally high scores from the discriminant function, despite low summary ratings in 1968, had been accorded an intermediate summary rating until 1967 and received low summary ratings afterward. In this case the function failed to classify the bank correctly according to either its current or subsequent summary rating. However, the margin of error was small. The other bank had been given a high summary rating for a number of years prior to 1968, was actually accorded a low rating only in 1968, and was upgraded to intermediate in 1969 and 1970. These data suggest that the low summary rating accorded this bank in 1968 may have been due largely to transitory factors. Finally, in the holdout group the one national bank with a high summary rating, but having a low score from the function, subsequently received a low summary rating in 1970. In sum, the functions have provided good discrimination, while a number of apparent misclassifications were suggestive of future changes in the summary ratings.

ANALYSIS OF THE BANKS WITH INTERMEDIATE RATINGS. In the holdout group of banks, thirty-seven state-chartered members had intermediate summary ratings in the years for which the functions were computed and had either negative scores or small positive scores from the discriminant function. These low discriminant scores were suggestive of a tendency toward weakness in the condition of these banks. In reviewing the summary ratings accorded these banks by supervisory personnel, we found that seven of them were given low summary ratings by the end of 1970. (Aside from these seven banks, no other state-chartered members in the intermediate group received a low summary rating by the end of 1970.) The other thirty banks with actual intermediate ratings and low discriminant scores did not subsequently receive low summary ratings. However, only three of these banks behaved contrary to their function rankings by subsequently obtaining consistently high summary ratings through 1970. The remaining twenty-seven banks were given intermediate summary ratings several times in the period through 1970. A few of these banks had received low summary ratings in prior years, and their low discriminant scores may reflect a borderline status.

Also, in the holdout group, twenty-four national banks had intermediate summary ratings and negative or small positive scores from the discriminant functions. Ten of these banks subsequently received low summary ratings by the end of 1970. In these instances, the discriminant functions provided early indication of the changes. None of the remaining fourteen banks received consistently high summary ratings; six remained consistently intermediate. The eight others had received low ratings in previous years, and perhaps they retained some characteristics that resulted in these low discriminant scores.

CONCLUSIONS

In sum, the results to date are encouraging. The estimated functions do a good job of discriminating between banks having low summary ratings and those whose ratings are high. They also appear to have moderate predictive power. All results must remain tentative, however, until we are able to duplicate the functions' discriminating ability and predictive power over a longer period of time and to establish the stability of the factors that produce accurate discrimination. Moreover, in the longer run, our aim is to develop functions that make use of variables gathered from nonexamination sources so that the early signs of changes in a bank's condition can be available to supervisory personnel in advance of an examination.