

FEDERAL RESERVE BANK OF RICHMOND

MONTHLY REVIEW

*Money And Credit In The
First Half Of 1969
State Government Expenditures
The Eurobond Market
The Fifth District*



NOVEMBER 1969

MONEY AND CREDIT IN THE FIRST HALF OF 1969

Since the first of the year, monetary policy has taken a firm grip on the financial expansion that helped sustain the excessive growth in aggregate demand which resumed roughly in mid-1967. Although the price indexes have not yet confirmed diminished inflationary pressures, the firm policy stance has no doubt made a major contribution in moving the economy back toward a noninflationary growth path.

Controversy frequently surrounds the meaning of a given description of monetary policy. For example, does restrictive policy mean (a) that interest rates are high or rising, (b) that bank credit or some broader credit total is declining or growing much more slowly, or (c) that the money stock or some broader measure of liquidity is declining or growing at a distinctly slower pace?

Frequently, not all of these things happen at the same time. For example, while interest rates rose sharply in the first half of 1966 and the period was described as one of "tight" money, bank credit, money, and total liquid assets held by the nonbank public continued to rise at approximately the same rate as in the 1961-65 period. Total private domestic credit rose at an accelerated pace.

The contrast with the first half of 1969 is striking in that not only have interest rates risen, but growth rates of bank credit, money, and liquid assets have declined sharply. Even the rate of growth of total private domestic credit has declined slightly. As a result, probably all observers will agree that money has been "tight."

Interest Rates Interest rates began rising in the fall of 1968 and continued to rise almost uninterrupted throughout the first half of 1969. The discount rate was raised from 5.5% to 6% in April, and bankers raised the prime rate from 7% to 7.5% in March and further to 8.5% in June. A period of stability developed in market rates during the summer but was followed by further increases this fall.

Bank Credit The growth of bank credit (total loans and investments of commercial banks) has fallen sharply from the 11.0% rate of advance last year. Bank credit, as measured by last-Wednesday-of-month data compiled by the Federal Reserve, grew at an annual rate of only 3.0% in the first half

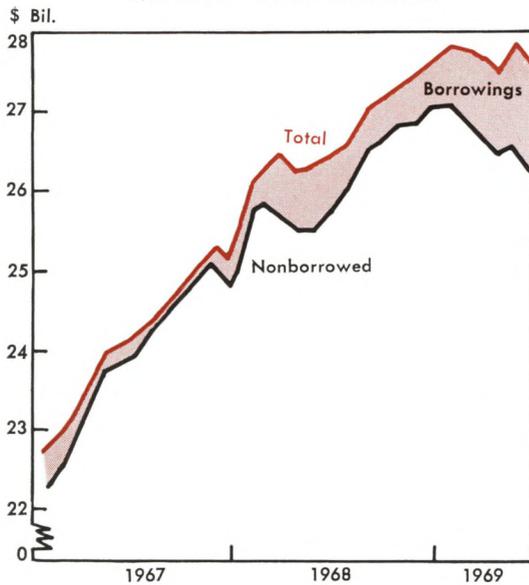
of 1969 and at a smaller 0.3% rate in the months of July and August.

The broad outline of factors underlying this behavior is quite clear. The Federal Reserve has been applying increased pressure to the banking system. Around the first of the year the monetary authorities began to absorb reserves through open market operations, i.e., through net sales of Government securities. Nonborrowed reserves declined at a 3.7% annual rate in the first half and at a 4.2% rate in the third quarter. Banks borrowed increasing amounts from the Federal Reserve, keeping total reserves about unchanged in the first half, but in the third quarter these declined at a 10.1% rate.

The Federal Reserve exerted further pressure on the banking system by not raising the ceiling on rates banks are permitted to pay on time and savings deposits. When rising market rates made yields on these deposits relatively unattractive late last year, banks began to lose time deposits rapidly. Attrition was initially most pronounced in large denomination certificates of deposit at money market banks, but has long since spread to "consumer type" time deposits and even to savings deposits at banks outside the money market centers. In response to high market rates of interest, savers switched from time and savings deposits to market instruments, but the ultimate effect from the standpoint of the banking system as a whole was a conversion of time and savings deposits into demand deposits, which have higher reserve requirements. Hence, what started as a loss of reserves at individual banks amounted in the final analysis to an increase in average reserve requirements for banks collectively. With average reserve requirements rising and total reserves falling because of open market operations, banks were forced to make substantial adjustments in their liability and asset structures.

Banks began to exploit the so-called "nondeposit" sources of funds, i.e., they began to borrow more heavily in the Eurodollar market, sell commercial paper through bank holding companies and affiliates, and sell loans and other assets under repurchase agreement. Individual banks could, of course, increase their reserves in this fashion. But for the banking system as a whole the result was a conversion of deposits into nondeposit liabilities and, consequently, a reduction in average reserve require-

MEMBER BANK RESERVES



Source: Board of Governors of the Federal Reserve System.

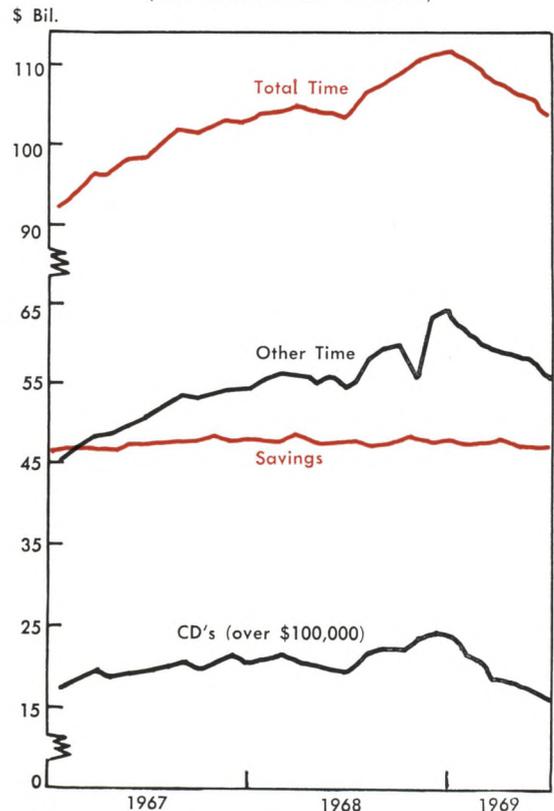
ments, partially offsetting the effects of time and savings deposit attrition. Reflecting borrowing in the Eurodollar market, American banks increased their liabilities to their branches located abroad from about \$6 billion in December to slightly more than \$14 billion in July. The Federal Reserve did not begin collecting information on other nondeposit sources of funds until May, but from May through July bank liabilities in these categories increased from about \$2.3 billion to \$4.4 billion.

Early in the second half (July 24), the monetary authorities moved to limit access to some nondeposit sources of funds by amending Regulations D, Q, and M. Regulation D governs member bank reserves; Regulation Q, the payment of interest on deposits; Regulation M, the foreign activities of member banks. Effective August 25, 1969, repurchase agreements with nonbanks involving assets other than Treasury and agency issues were defined as time deposits, subject to reserve requirements and interest ceilings. Recent data indicate that this change has been effective in reducing the sale of assets under repurchase agreement, and has put further pressure on the liquidity position of banks by reducing the potential liquidity of broad classes of bank assets. Other amendments have had the effect of reducing banks' incentives to borrow in the Eurodollar market. One amendment required banks to include in deposits subject to reserve requirements the so-called "London checks" and "bills payable checks" which are used in repaying borrowings from foreign

branches. Another imposed marginal reserve requirements on Eurodollar borrowings and on the proceeds of sales of outstanding loans to foreign branches.

The stringency of reserves, the scrambling of banks for funds, and the reduced growth of bank credit in the first half must be viewed against the backdrop of strong credit demands. In particular, business loan demands were strong as internally generated funds fell short of amounts necessary to finance business capital spending and inventory investment. Business loans at commercial banks expanded at an almost 15% annual rate in the first half, very rapidly by historical standards. To meet these strong demands in the face of reduced reserve availability, banks used the reserve base more intensively by adjusting their liability structure as previously described. In addition, they liquidated investments at a rapid pace. Total investments declined at an 8.2% annual rate in the first half following a 7.3% increase in 1968. Most of the liquidation occurred in U. S. Government securities, but holdings of other securities declined

TIME DEPOSITS AT LARGE COMMERCIAL BANKS (NOT SEASONALLY ADJUSTED)



Source: Board of Governors of the Federal Reserve System.

slightly in contrast to rapid increases earlier in the decade.

The cumulative weight of restrictive monetary policy has been more evident since May. Bank credit has actually declined, and more importantly, perhaps, the rate of loan growth has diminished. Business loans during the summer months grew at only a 4.3% annual rate and other loans declined slightly. Some of this slowdown may have been due to reduced credit demands, but probably the most important factor was the cumulative impact of tight money. Liquidity positions have been eroded to the point that banks are strenuously rationing credit. As already mentioned, banks raised the prime rate a full percentage point to 8.5% in early June, and a recent survey of bank lending practices reveals that banks have further tightened the screws on their non-price terms.

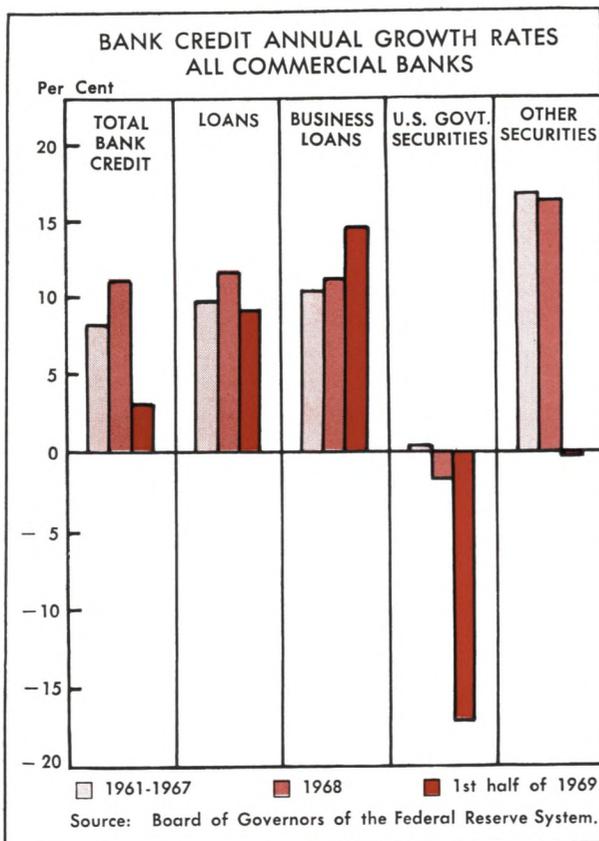
As is typically the case in periods of restrictive monetary policy, the banking system's share of total credit flows, according to flow of funds data collected by the Federal Reserve, declined from 39.8% in 1968 to 16.3% in the first half of 1969, down substantially from the previous low of 25% in 1966. While banks strove to maintain their lending to the

private domestic nonfinancial sector by liquidating U. S. Government securities, their share of flows to this sector declined from 41.0% in 1968 to 28.4% in the first half of 1969.

Other Depository Institutions Normally other depository institutions, such as savings and loan associations and mutual savings banks, find themselves in much the same boat as commercial banks during periods of tight money. Limited as to the rates they can pay on deposits by the regulatory authorities and by the long-term nature of their assets, they are usually quite vulnerable to rising yields on market instruments. Savings inflows held up very well in the first quarter, however. And while they dipped sharply in the second quarter, these institutions were able to maintain their support of the mortgage market mainly by reducing holdings of liquid assets and by continued heavy borrowing. As a result, their share of credit extended to the private domestic nonfinancial sector in the first half remained at approximately the 17% level which prevailed in 1968. Savings inflows apparently have fallen sharply further in the third quarter, and it is doubtful if their share of the market can be maintained.

Total Credit Flows An analysis of bank credit alone or even of bank credit plus credit extended by nonbank depository institutions may overstate the degree of restrictiveness of monetary policy. After all, there are a number of alternatives which borrowers may use in adjusting to pressures exerted by the Federal Reserve. When the cost of credit supplied by depository institutions rises and its availability shrinks, borrowers typically turn to other lenders. As a result, the slower growth of credit extended by depository institutions has been offset to some extent by the lending activity of other sectors of the credit markets.

Total flows of credit to the private domestic nonfinancial sector remained very high in the first half of 1969, down only slightly from the second half of 1968 and up slightly from the average level for 1968



SELECTED YIELDS ON SELECTED DATES

	Week Ended		
	Dec. 27	June 27	Sept. 19
Short-term instruments			
90-day bills	6.22	6.30	7.13
4-6 month commercial paper	6.25	8.55	8.50
Bankers' acceptances	6.60	8.58	8.38
Longer term instruments			
3-5 year Governments	5.81	6.48	7.41
5-10 year Governments	6.12	6.66	7.39
Over 10-year Governments	5.82	6.03	6.34
Moody's Aaa Corporates	6.53	7.03	7.16
Moody's Aaa Municipals	4.57	5.55	5.85

as a whole. Borrowers turned increasingly to funds supplied by nondepository financial institutions and by others within the private domestic nonfinancial sector. Financial institutions other than banks and savings and loan associations (credit unions, insurance companies, private pension funds, etc.) supplied credit in the first half in slightly greater volume than in 1968, maintaining the 33% share of the market which they held in 1968. Direct lending by others than financial institutions (individuals, nonfinancial businesses and state and local governments) became more important in the first half, accounting for 21.7% compared with 7.9% in 1968.

Liquidity While an increase in direct lending has tended to offset the reduced rate of bank credit growth, there has not been an equal dampening of the restrictiveness of monetary policy measured from the liquidity side. Monetary restraint has been readily apparent in the behavior of liquidity indicators. The money stock grew at a 3.8% annual rate in the first half of 1969, down from 7.0% in 1968. As the chart shows, other common measures of liquidity either declined or grew more slowly.

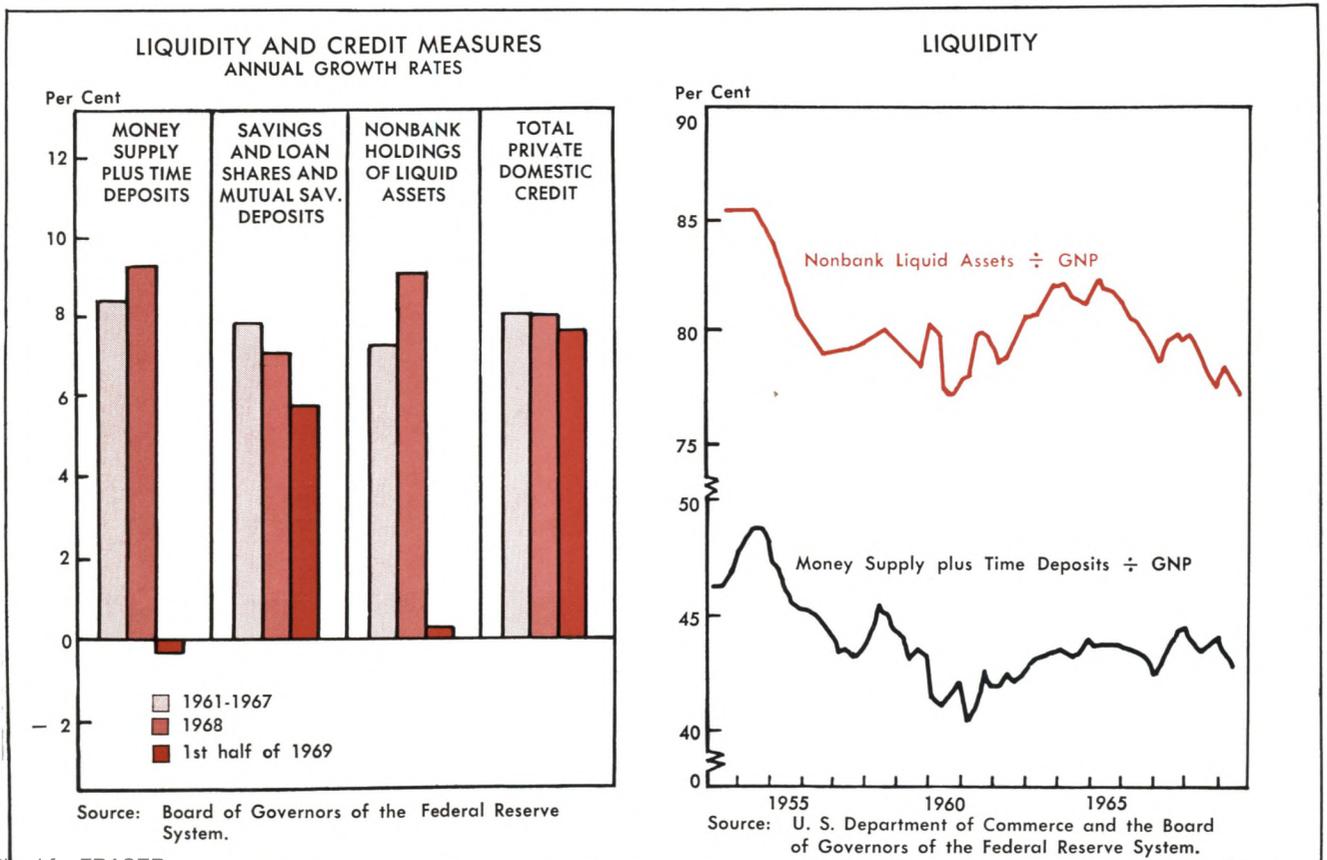
This behavior of liquidity is a consequence of disintermediation and the changed composition of total credit flows. Rising interest rates diverted

funds from the banks and savings and loan associations, and instead of acquiring liquid claims on depository institutions savers acquired market instruments, many of which were long-term, nonliquid claims.

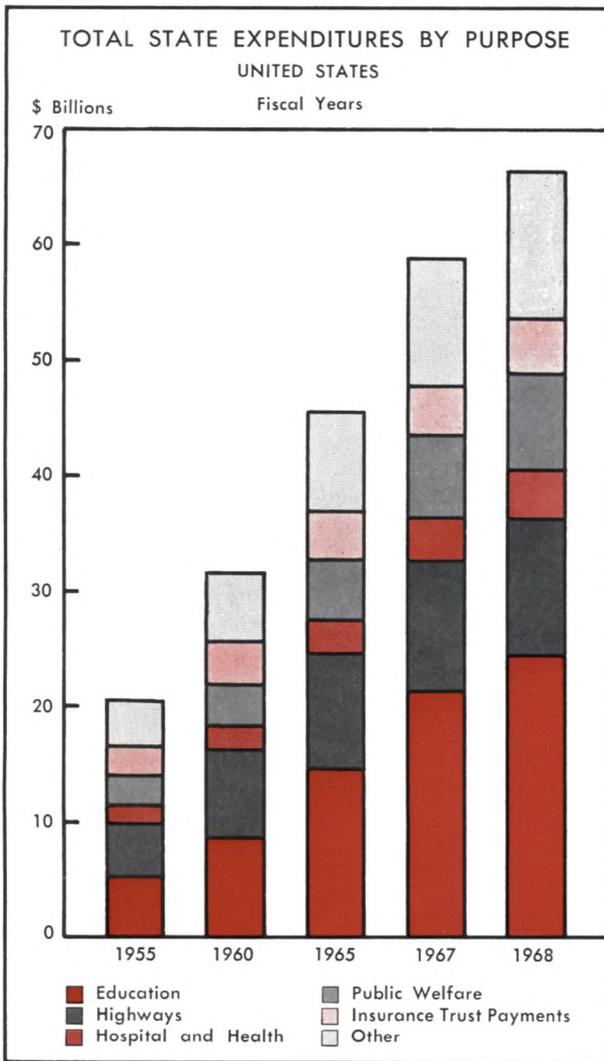
While liquid assets have grown at substantially reduced rates, GNP has continued to advance rapidly. As a result, the liquidity of the nonbank public relative to GNP has declined sharply this year, and the public has become less willing to sacrifice liquidity and acquire nonliquid claims, doing so only at rising rates of return on market instruments.

Summary Growth of credit at depository institutions has slowed down. Attracted by rising market rates of interest, savers have channeled an increasing fraction of their savings directly into market securities. While credit flows outside the depository institutions may have compensated to some extent for the financing of real economic activity that might otherwise have taken place through such institutions, an accompanying increase in liquidity has not occurred. Declines in liquidity relative to economic activity may act as a brake on further growth of unintermediated credit and thus on the financing of aggregate demand.

Wynnelle Wilson and Jimmie R. Monhollon

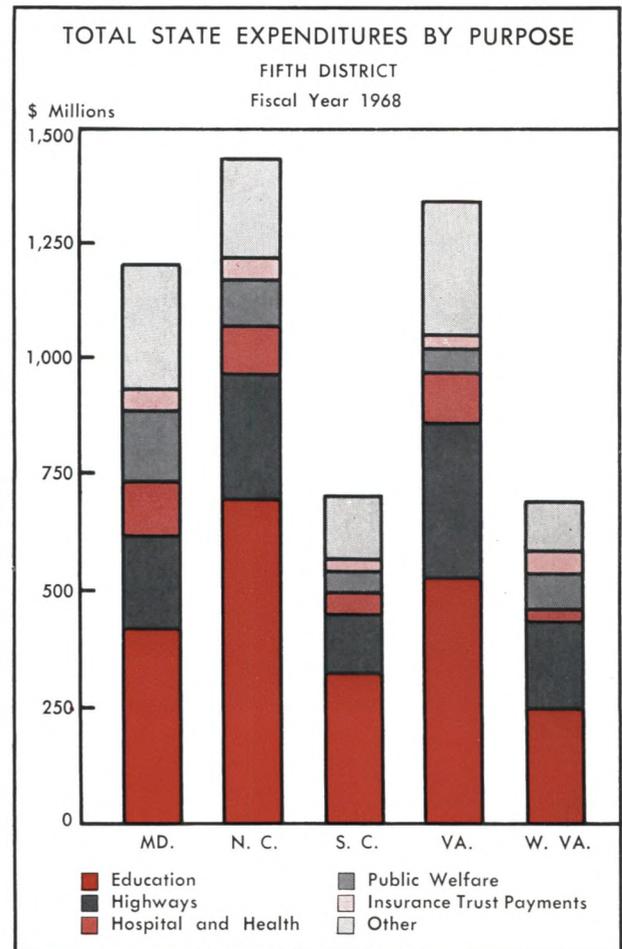


STATE GOVERNMENT



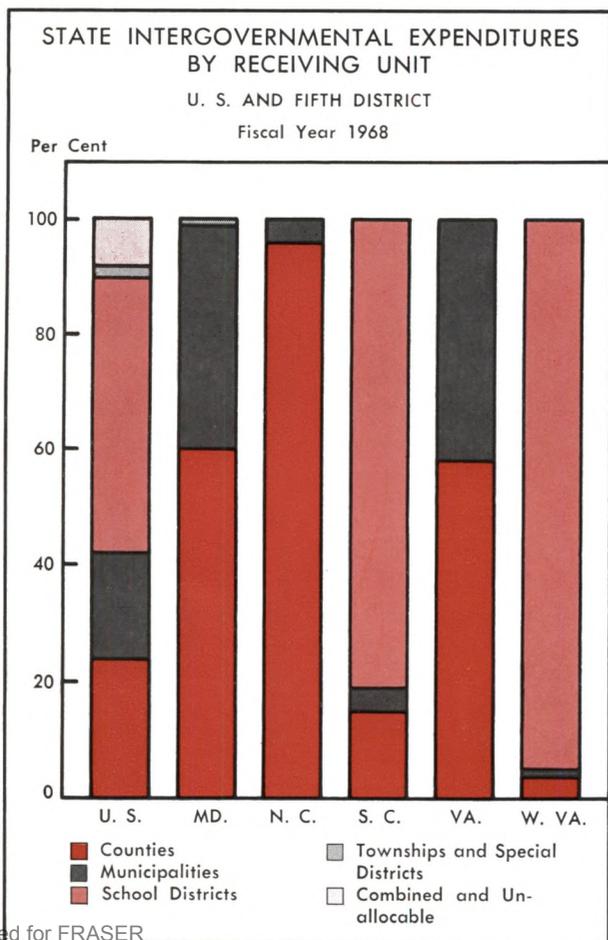
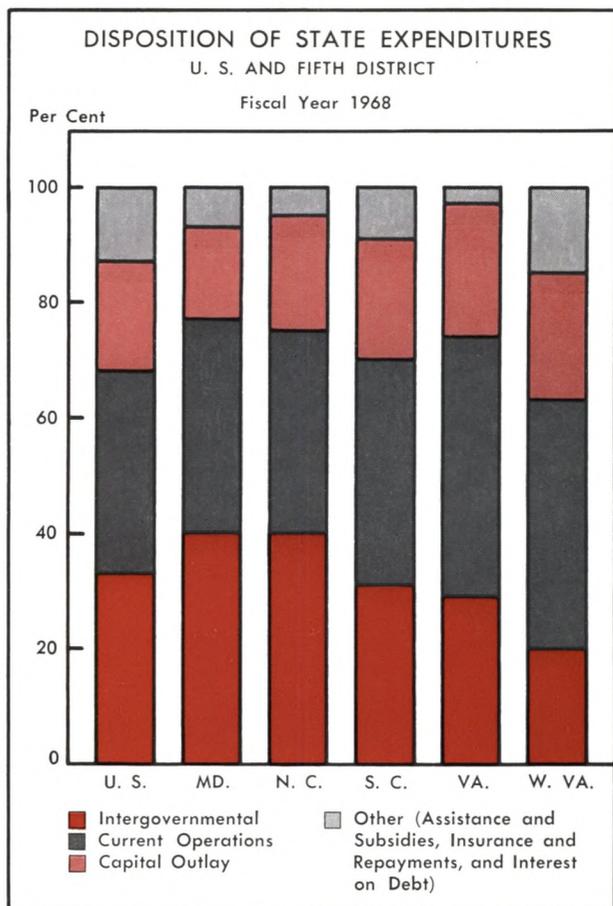
Total state government expenditures in the U. S. have more than tripled since 1955, and expenditures for education alone have more than quadrupled. Disbursements for education have increased from almost 25% of total expenditures in 1955, to over 36% in 1968. Outlays for highways have accounted for the next largest share of state expenditures with nearly 24% of total disbursements in 1955, a high of almost 25% in both 1956 and 1959, and around 18% in 1968. Insurance trust payments have fluctuated from a high of almost 14% of total expenditures in 1959 to a low of 7% in 1968, while expenditures for public welfare and hospitals and health have remained relatively stable percentages of the total. "Other" expenditures go largely for natural resources and, in 17 states including Virginia and West Virginia, for liquor stores.

Expenditures by the Fifth District states since 1955 also went primarily for education and highways. The percentage of expenditures going for education has ranged from a low of not quite 20% in Maryland in 1955 to a high of almost 50% in North Carolina in 1966. Since 1955 highway expenditures have exceeded those for education on occasion in both Maryland and Virginia. Currently, however, highway disbursements hold second place in all District states, ranging from around 16% of total expenditures in Maryland to 26% in West Virginia. Public welfare payments as a percentage of total expenditures declined between 1955 and 1968 in all District states except Maryland where there was an increase of seven percentage points. Hospital and health expenditures declined slightly over the period in Maryland and North Carolina but increased in the other three states, and insurance trust payments increased in all District states.



NT EXPENDITURES

Construction outlays made up the bulk of capital outlay expenditures, both in the U. S., 82%, and in the District states (from 77% in Maryland to around 83% in both Virginia and South Carolina). State interest payments on debt exceeded \$1 billion in the U. S. in 1968, and reached \$30 million in Maryland, the District high, and over \$8 million in Virginia, the District low. As a per cent of total expenditures interest payments have actually decreased in three District states since 1955. Compensation of state employees and officers accounted for between 21% and 24% of total expenditures for both the U. S. and the District.



State governments in the U. S. gave over \$10 billion to school districts in 1968, over \$5 billion to county governments and over \$4 billion to municipalities. In the District, North Carolina gave over \$550 million to her counties, followed by Maryland at almost \$292 million, and Virginia at \$226 million. Maryland and Virginia gave their municipalities over \$190 million and over \$161 million, respectively, to lead the District. South Carolina's aid was concentrated on school districts (\$178 million) as was West Virginia's at \$128 million.

Katherine M. Chambers

Source: U. S. Department of Commerce.

THE EUROBOND MARKET

The 1960's have witnessed a number of changes and innovations in the money and capital markets, both at home and abroad. Not the least of these has been the meteoric rise of the Eurobond market. This market is not, as the name implies, confined exclusively to Europe or European participants, but is an international capital market utilized extensively in the recent past by U. S. corporations.

Origins of the Market Prior to the emergence of the Eurobond market in 1963-64, borrowers who wished to float issues outside their own national borders chose a particular national market for the sale, such as the U. S. or Switzerland, and denominated all the bonds in the currency of the country chosen. Until 1963, New York was the principal market for foreign bond flotations. While U. S. investors were the chief purchasers of these bonds, they became increasingly attractive to foreign buyers because their yields frequently exceeded those on bonds sold domestically by the same borrowers. In addition, foreigners considered dollar-denominated assets attractive in their own right. The imposition of the Interest Equalization Tax in July 1963, however, spelled the end of New York as a major foreign bond market. This tax is levied as a percentage of the purchase price of a foreign security. While it is paid by the purchaser, in the case of bonds it generally is shifted to the foreign seller who must offer a correspondingly higher yield to attract U. S. investors.

Meanwhile, British authorities had been preparing the ground for the rebirth of London as the principal international capital market by easing pertinent legal restrictions and reducing certain taxes. Due to balance of payments problems, however, the authorities severely restricted access to the British bond market to a preferred list of Commonwealth borrowers. The dollar-denominated bonds sold in May 1963 by the Belgian government through the London market, principally to non-U. S. investors, may be considered the first true Eurobond issue.

Nature of a Eurobond A Eurobond issue is marketed by an international syndicate simultaneously in a number of different countries. All the bonds in a given issue are denominated in the same currency. Eurobonds are generally sold to investors in countries other than the one in whose currency they are denominated. In these respects a Eurobond differs from a foreign bond issue which is (1) denominated in the currency of the country in which it is sold,

(2) underwritten by a national syndicate, and (3) sold primarily to investors in that country. Whereas a foreign bond issue is subject to all laws and regulations of the country in which it is sold, a Eurobond issue is generally exempt. In fact, the Eurobond market is virtually free of any direct regulation or control. All Eurobonds are "bearer," or unregistered, bonds to protect the anonymity of the investor. If the borrowing corporation fulfills the regulations of the country in which it is incorporated, income taxes need not be withheld from interest payments. The tremendous popularity of Eurobonds with investors can be explained in large part by the ease with which taxes on them may be evaded.

Marketing a Eurobond Issue A special set of problems attends each flotation of Eurobonds because the bonds must be attractive to investors of many countries. The quality of the borrower, the stability and convertibility of the currency chosen, and freedom from national taxation are among the principal concerns of potential investors. Principally in order to avoid tax withholding requirements, most American corporations and some European ones establish separate international financing subsidiaries, often solely for the purpose of raising funds in the Eurobond market. Although U. S. subsidiaries are usually incorporated in Delaware, Luxembourg and the Netherlands Antilles are also popular bases. The parent company generally guarantees bonds sold by the subsidiary.

A typical Eurobond issue is sponsored by a syndicate composed of four or five leading European banks and/or U. S. investment houses. The managing group then selects perhaps 20 to 50 more financial institutions from several countries to assist in the underwriting operation. These firms, in turn, form selling groups in their own countries or areas to effect the final placement of the issue. Thus, anywhere from 50 to 100 firms assist in the marketing of each Eurobond issue, regardless of its size. Because most single institutions reach a relatively small number of investors, a large number of firms is necessary to tap effectively the multinational market. Furthermore, the European capital market has very few large institutional investors. Once placed, the bonds may be delivered simultaneously in several cities, but payment is generally in one city. Payment in dollar-denominated securities is always in New York.

Demand for Eurobonds Wealthy individuals are attracted by the high quality, high yield, and virtually tax-free nature of Eurobonds. The Chase Manhattan Bank estimates that 70% to 80% of most issues is bought by individuals. The identity of these

individuals is harder to establish, however. Americans are discouraged from investing in Eurobonds as such purchases are subject to the Interest Equalization Tax. While undoubtedly a number of Americans do buy Eurobonds through Swiss or other foreign banks, thereby evading this tax, they apparently do not constitute a major class of investors. British citizens are seriously hampered in the purchase of any dollar-denominated straight debt asset by foreign exchange controls. Until recently, however, other major European countries outside Scandinavia placed no restrictions on the flow of funds into the Eurobond market.

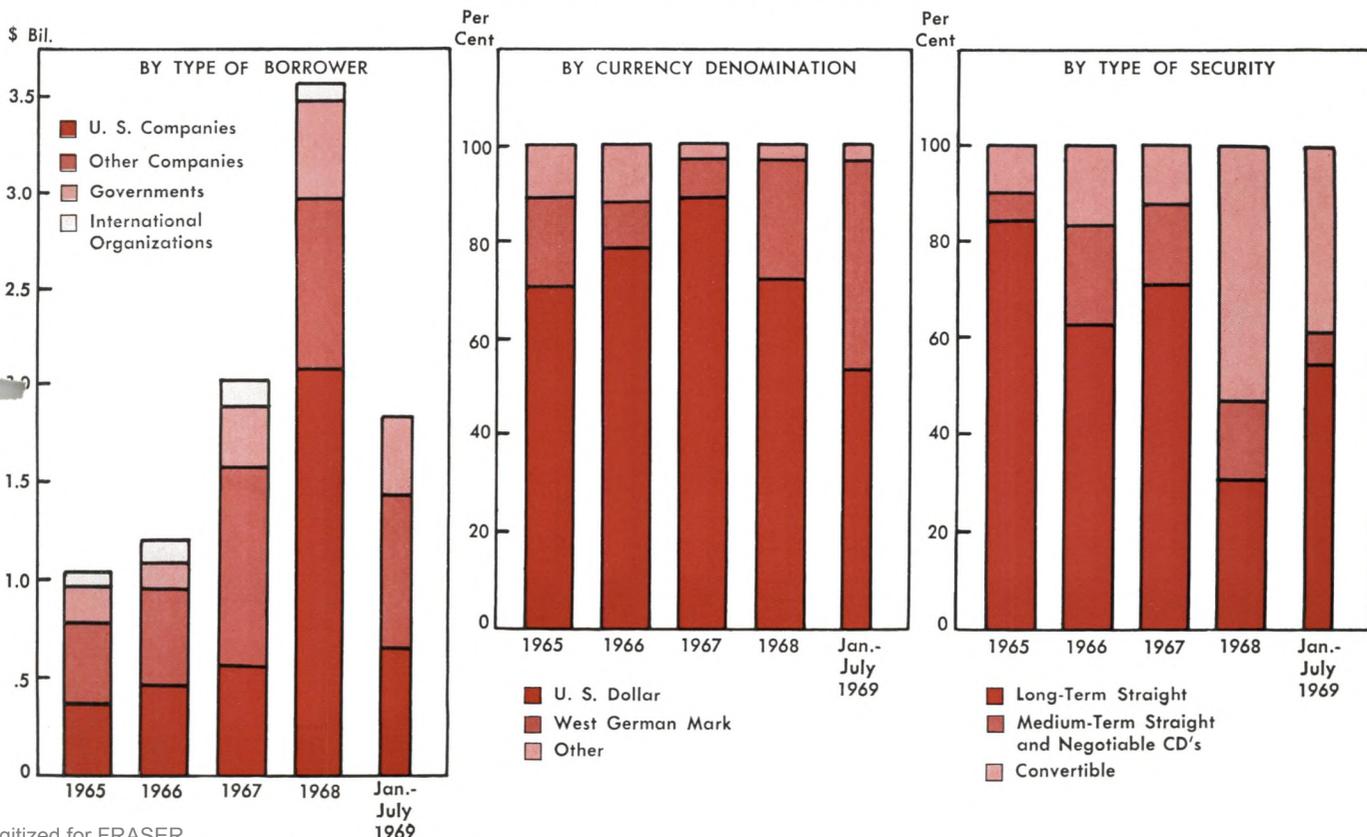
Based on the origin of subscriptions, Switzerland is the most important source of Eurobond demand, accounting for one-quarter to one-third of all purchases. A recent study by N. M. Rothschild & Sons estimates that 60% to 70% of these bonds ultimately is placed with non-Swiss residents.¹ Italy, Belgium, and the Netherlands have been important sources of demand at various times. Germany has been a major purchaser since early 1968 when Eurobond rates exceeded domestic long-term rates.

¹ N. M. Rothschild & Sons, *The Eurobond Market*. A study on the issuing and trading of Eurosecurities prepared at the request of the High Level Standing Group on Capital Markets of the Business and Industry Advisory Committee to the Organisation for Economic Co-operation and Development. February 1969. p. 9.

The Market 1964-1967 Between 1964 and 1967 the volume of Eurobond offerings expanded steadily from \$700 million to \$2.0 billion. During these years the center of activity shifted first from London to Luxembourg, and then diffused to include New York and Germany. Scandinavian governments and private Japanese corporations, both of which had been active in the New York foreign market, continued to be among the most frequent borrowers. International institutions, particularly the European Coal and Steel Community and the European Investment Bank, also utilized the market. As shown in the chart, however, private non-U. S. corporations were the dominant group of borrowers until 1968. During these years, the proportion of Eurobond offerings denominated in dollars climbed to about 90%, with long-term straight debt the most popular type.

In 1965, U. S. corporations entered the Eurobond market for the first time. In February of that year, the U. S. Government had requested voluntary compliance by major U. S. corporations to a set of guidelines designed to improve the U. S. balance of payments position. These guidelines curtailed direct exports of capital for overseas development. In their search for capital, these corporations turned first to overseas banks for credit, and, in the latter part of

EUROBOND FLOTATIONS



the year, to the Eurobond market. Eurobond sales by U. S. corporations constituted about one-third of the total in 1965, a proportion which was not exceeded until 1968. As a corollary to the entrance of U. S. borrowers, New York underwriters soon became prominent in Eurobond syndicates.

Events in 1968 In 1968, the Eurobond market was deluged with offerings by American companies and the volume of Eurobond sales surpassed the combined total of the preceding two years. The surge in U. S. borrowing was triggered by the replacement of voluntary balance of payments controls with more stringent mandatory ones on January 1, 1968. Under the new controls, U. S. corporations were forced to rely almost exclusively on overseas borrowing to finance their foreign operations. American companies accounted for \$2.1 billion of the \$3.6 billion total of Eurobonds sold in 1968.

This dramatic change in the composition of borrowers was accompanied by an equally abrupt switch in the types of bonds sold. The market for long-term straight debt, which had hitherto absorbed the preponderance of Eurobond issues, apparently could not handle comfortably the influx of new issues at the prevailing interest rates, and most borrowers were unwilling to pay substantially higher rates. While some borrowers shortened the maturities on their straight debt issues to insure successful sales, a majority turned to bonds which were convertible into common stock of the parent company. The net result was that over half of the total volume of Eurobonds sold in 1968 was convertible, compared to 13% in 1967, and 86% of all convertibles were sold by U. S. companies. Indeed, virtually the entire growth in the Eurobond market in 1968 was attributable to convertibles as sales of long-term straight debt actually declined.

Convertibles were fairly new to the international bond market and proved to be extremely popular. The special appeal of a convertible bond lies in the combination of a good yield as protection in a bear market and the capital gains potential should the share price of the company's stock rise. With U. S. stock prices generally rising at that time, the conversion option was also highly valued. Several mutual funds composed solely of convertible Eurobonds were launched. Sellers of convertibles apparently felt that the risk of future equity dilution was more than offset by the ease of procuring funds at considerably lower interest rates than those prevailing on straight debt issues.

While U. S. borrowers dominated the Eurobond market in 1968, the dollar slipped somewhat from

its preferred position as the currency of denomination for Eurobonds. Despite the fact that all convertible issues were denominated in dollars, dollar Eurobond issues dipped to 72% of the total, with issues denominated in West German marks rising from 8% in 1967 to 25% in 1968. The mark's growing popularity reflected investor confidence in the mark and the desirability of holding such bonds should the mark be revalued. Borrowers were attracted by the significantly lower interest cost of mark-denominated bonds compared to dollar bonds.

Recent Developments After a fast start in 1969 during which the trends of the previous year were accentuated, the Eurobond market staggered and then stalled. Total Eurobond offerings dropped from \$1.2 billion in the first quarter to \$0.5 billion in the second. Several developments contributed to this decline. High and rising interest rates discouraged some borrowers and diminished the appeal of long-term straight debt investments, as many investors preferred short-term paper. In particular, the short-term Eurodollar market, which offered rates of return in excess of 10% for 3-month deposits, represented keen competition. Rising interest rates on mark-denominated bonds made them less attractive to bond sellers as the threat of revaluation was no longer countered by a significantly lower interest cost. Concurrently, convertible issues became less alluring to investors as U. S. stock prices plunged. Two other factors contributed to a slowdown in offerings by U. S. corporations: direct foreign investment controls were eased somewhat, thereby lessening their dependence on the Eurobond market, and the heavy borrowing of 1968 undoubtedly alleviated the immediate need for new funds. Finally, Germany, Italy, and Switzerland adopted measures restricting to some degree the volume of Eurobonds sold within their borders. These countries acted to protect their relatively lower long-term domestic interest rates and to insure the availability of sufficient capital for domestic investment.

Conclusion The future growth and direction of the Eurobond market depends to a large extent on the health and stability of major currencies and the willingness of nations to permit foreigners to tap their domestic sources of investment funds. The ever-expanding list of new borrowers drawn to the Eurobond market and the variety of instruments offered suggest that the market will continue to play an important and unique role in international finance as long as underlying conditions are favorable.

Jane F. Nelson

The Fifth District



ELECTRIC POWER PRODUCTION 1963-1967

Evidence of the growth in Fifth District population, industry, and commerce is found in the increasing production of electrical energy. Electrical energy production grew at an average annual rate of 9.6% between 1963 and 1967, placing the Fifth District well above the 7.1% rate of growth for the nation over the same period.

Production As shown in Table I, electric power production grew faster in the District of Columbia than in any of the Fifth District states, despite a sharp drop in production in 1965. Sales of electric power in Washington actually rose in 1965, meaning that, while production was cut back, additional amounts of power were brought in from sources outside the city.

In terms of total production of electric power the District of Columbia ranked sixth with slightly over one billion kilowatt hours in 1967. South Carolina, the fifth largest in total production, produced 13.7 billion kilowatt hours in the same year.

North Carolina's rate of growth in production

ranked only third, but in total production of electrical energy it was consistently the largest with 38.7 billion kilowatt hours in 1967. In the Fifth District it has the largest population and the largest number of manufacturing establishments—both of which are sizable sources of demand for electric power.

Generating Capacity For Maryland, the District of Columbia, and North Carolina, the average rate of growth in production between 1963 and 1967 was greater than the average increase in generating capacity, which suggests that they were able to make more intensive use of existing capacity. The opposite was true in Virginia, West Virginia, and South Carolina which increased their generating capacity more than their production.

The Virginia Electric and Power Company, for example, reportedly attempts to maintain capacity 10% to 15% in excess of that required by current demand in order to have a reserve for emergencies.

Principal Customers Industrial firms consumed the bulk of kilowatt hours sold in most Fifth Dis-

TABLE I
PRODUCTION OF ELECTRIC ENERGY IN THE FIFTH DISTRICT
(Millions of Kilowatt Hours)
1963-1967

	1963	1964	1965	1966	1967	Average Annual % Increase
Maryland	12,496	13,920	17,272	18,868	20,915	13.9
District of Columbia	708	871	564	919	1,018	15.4
Virginia	21,912	23,090	23,371	23,813	23,404	1.7
West Virginia	18,219	18,889	19,225	23,220	27,359	11.0
North Carolina	24,937	28,189	31,183	35,162	38,705	11.6
South Carolina	11,548	12,497	12,643	12,812	13,441	3.9

Source: U. S. Department of Commerce.

TABLE 2
INSTALLED GENERATING CAPACITY
 1963-1967
 (1,000 Kilowatts)

	1963	1964	1965	1966	1967	Average Annual % Increase
Maryland	2,699	3,312	3,676	4,038	4,101	11.3
District of Columbia	537	537	537	537	537	0.0
Virginia	4,548	4,946	5,115	5,331	5,349	4.2
West Virginia	3,140	3,048	3,608	4,179	5,147	13.6
North Carolina	5,759	6,007	6,345	7,106	7,188	5.8
South Carolina	2,554	2,690	2,696	2,859	3,093	4.9

Source: U. S. Department of Commerce.

district states. West Virginia was a case in point; there, in 1966 and 1967 only 20.8% of the kilowatt hours sold went to residential customers while

64.2% went to industrial firms. Much of this industrial demand for electric power originates in the mining industry. Virginia was the exception with the majority of sales going to residential customers.

TABLE 3
COMPOSITION OF ELECTRIC POWER SALES
 1966 and 1967
 (Millions of Kilowatt Hours)

	Total	Residential	Commercial	Industrial
Maryland and D. C.	33,373	9,531 (28.56)	9,447 (28.31)	13,102 (39.26)
Virginia	35,775	12,465 (34.84)	8,741 (24.43)	10,942 (30.59)
West Virginia	22,159	4,617 (20.84)	2,834 (12.79)	14,266 (64.20)
North Carolina	48,373	16,681 (34.48)	8,245 (17.04)	21,778 (45.02)
South Carolina	29,258	8,402 (28.72)	4,261 (14.56)	15,473 (52.88)

Note: Bracketed figures are percentages of total.

Source: U. S. Department of Commerce.

Nuclear Power The Fifth District has no nuclear power plants in service at present, but this situation will change radically over the next decade. The small nuclear plant which was constructed by a group of Fifth District utility companies and the Atomic Energy Commission at Parr, South Carolina has gone out of operation. It was run for seven years as an experimental model, and the lessons learned from it are now being put to use in the construction of large permanent nuclear power plants in Maryland, Virginia, North Carolina, and South Carolina.

Robert W. Chamberlin

FIFTH DISTRICT FIGURES — 1969 EDITION

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