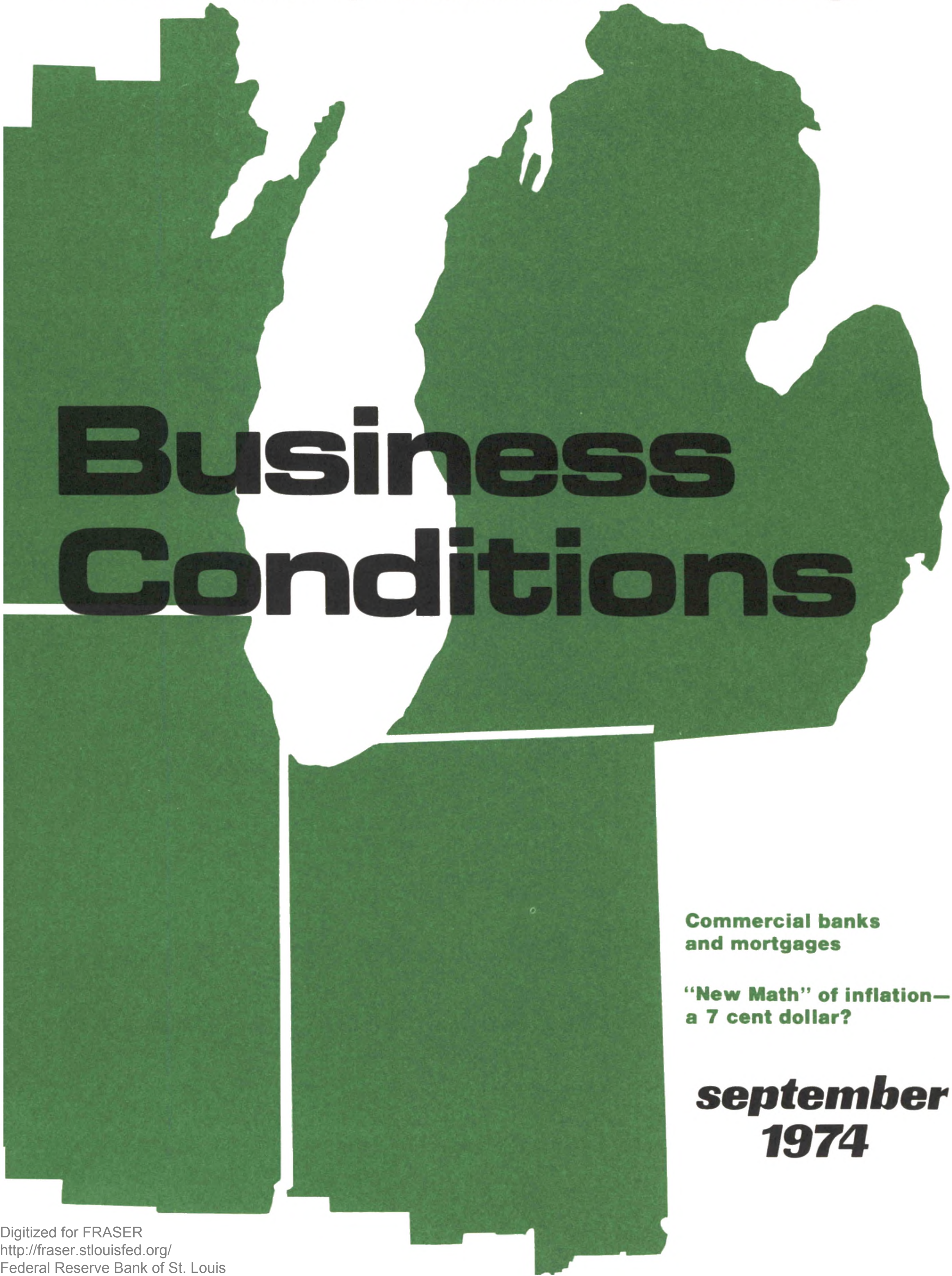
an economic review by the Federal Reserve Bank of Chicago



Business Conditions

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Commercial banks and mortgages

There are two main reasons why mortgage money is in short supply these days. First, people who used to make regular deposits in the financial institutions that specialize in mortgage loans are now distributing their savings dollars over a variety of investments. That means fewer dollars available to the nation's primary mortgage lenders. Second, the spread between the cost of loanable funds and the income that can be expected on a mortgage loan—especially in states where usury laws place an interest rate ceiling on such loans—is narrowing to the point of disappearance.

In an "average" year, thrift institutions (savings and loan associations and mutual savings banks) provide most of the financing for mortgages—and mortgages absorb more of the funds available in the nation's credit markets than any other form of debt, with residential mortgage debt accounting for the biggest part of that total. With outflows of deposits from thrift institutions since last spring now clearly reflected in reductions in the mortgage commitments of thrift institutions, a question arises as to the extent that commercial banks can be expected to help sustain the mortgage markets.

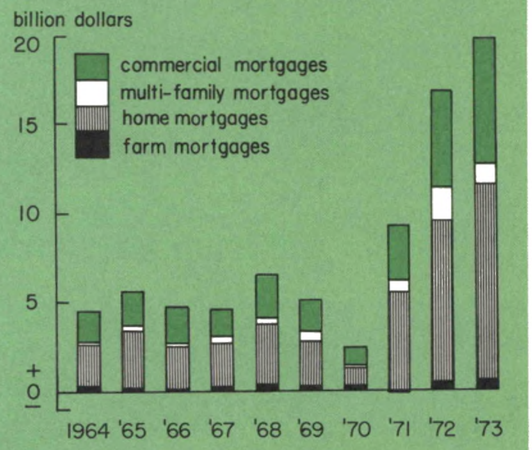
Banks have always been an important direct source of real estate credit for both construction loans and long-term mortgages. But, like the thrift institutions, they have adopted restrictive lending practices under present public policies to reduce inflationary pressures resulting from monetary expansion. Nevertheless, because of their easier access to money market sources of funds and the greater responsiveness of total interest revenues on their loans to the current cost of funds, they are probably in a better position to supply funds to finance mortgages than are other financial intermediaries.

Ten years of growth

In every year during the past decade, commercial banks have expanded their holdings of real estate loans on one- to four-family residential, multifamily residential, and commercial properties. Bank real estate loans secured by farmland also increased annually except for a small decline in 1971. Expansion in the last two years has been especially impressive.

During 1973, despite disintermediation problems in the third quarter when savings flowed out of thrift institutions into direct market investments, real estate credit on one- to four-family residential properties in the United States rose by a record $41 billion, and commercial banks provided 27 percent of this increase directly—the largest proportion since just

Bank holdings of real estate loans have expanded sharply over the past three years



after World War II. Banks also supplied 12 percent of the growth in loans on multifamily residential properties, 42 percent of the growth in loans on commercial properties, and 14 percent of the increase in mortgages secured by farmland. The amount of the 1973 increase in mortgages held by commercial banks was actually twice as large as the amount posted in 1971, with all types of property sharing in the increase. Commercial banks financed 27 percent of the increase in total mortgages outstanding in each of the first three quarters of 1973, and 30 percent in the fourth.

From year-end 1963 to year-end 1973, total real estate loans at commercial banks in the United States have tripled, growing to $119 billion and representing 19 percent of total mortgage debt outstanding. Loans secured by one- to four-family residential properties increased at a slightly less rapid rate but still represented 57 percent of the real estate loan portfolio. Multifamily residential loans, while increasing as a proportion of total real estate loans, continued to be less than one-tenth of all bank-held residential loans. The most rapid gain over the decade was recorded by loans on commercial properties, such as business and industrial properties, hotels, churches, hospitals, and educational or charitable institutions. These increased from 27 percent of the real estate loan portfolio in 1963 to 33 percent at the end of 1973. Farm mortgages during this period registered a small decline in importance at banks.

Partly as a result of the liberalization of lending terms permitted on conventional residential loans and partly due to the availability of private mortgage insurance, conventional mortgage loans increased as a percent of the total residential loan portfolio from 62 percent in 1963 to 85 percent in 1973. FHA-insured and VA-guaranteed loans declined in importance correspondingly.

Banks ranked second only to S&Ls in mortgage holdings at year-end 1973

Major lenders	One- to four-family residential	Multi-family residential	Commercial	Farm	Total
		(billions of dollars)			
Commercial banks	68.0	6.9	38.8	5.4	119.1
Mutual savings banks	44.2	16.8	12.1	.1	73.2
Savings and loan associations	189.6	22.4	21.3	–	233.3
Life insurance companies	22.0	18.4	34.7	6.0	81.2
Federal agencies	31.6	4.3	–	11.1	47.2
All others	34.2	18.0	17.2	17.2	86.6
Total	389.6	86.8	124.2	39.8	640.4

Other real estate credit activities

In addition to real estate loans, the commercial banking system provides real estate financing through commercial and industrial loans for on-site construction, through consumer instalment loans for the purchase of mobile homes and for residential repair and modernization, through the purchase of housing-related federal agency securities, through bank loans to such financial institutions as mutual savings banks, mortgage companies, and savings and loan associations, and through loans to real estate investment trusts, for whom a major activity is mortgage lending. In recent years, commercial banks have also expanded their mortgage banking activities, i.e., the origination of mortgages for sale in the secondary markets to permanent investors. Frequently, the originating bank retains the loan servicing, for which it receives a fee, usually equal to a fixed percentage of the outstanding balance of the loan.

The estimated book value of commercial bank real estate-related credit, not including loans to other financial institutions,

U.S. banks finance housing and construction through several avenues

	(billions)*
Real estate loans	$119.1
Construction loans classified as commercial and industrial loans	3.0
Retail consumer instalment loans:	
Mobile home	8.4
Residential repair and modernization	4.8
Housing-related federal agency securities:	
Federal Home Loan Bank Board	4.7
Federal National Mortgage Association	6.6
Government National Mortgage Association	.5
Total	$147.1

*Data as of December 31, 1973.

totaled approximately $147 billion at the end of 1973. The liberalization of lending powers and the acceleration of overall commercial bank growth, mainly through expansion in time and savings deposits, have enabled commercial banks to assume a more significant role in mortgage lending and other forms of real estate financing in the past decade.

Legal lending powers

Before the Sixties, commercial banks were subject to more stringent limitations than other mortgage lenders in making real estate loans. The traditional view was that the earning assets of commercial banks should be primarily in the form of short-term credit because most of their deposit liabilities were payable on demand. To provide bank liquidity and reduce exposure to losses, federal and state laws imposed restrictions on real estate loans by banks. The successful post-World War II experience of other lenders in financing the nation's housing needs through more liberal lending practices convinced legislators and regulators in the early Sixties that commercial banks should be permitted to follow essentially similar lending practices. Since then, the liberalized powers have been found to be consistent with public policy objectives of maintaining the flow of investment funds into housing, especially when high rates on market obligations, such as Treasury bills, attract savings funds out of deposits at financial intermediaries.

Prior to 1962, the limitation on total mortgage and construction loans secured by real estate for national banks was equal to the sum of paid-in, unimpaired capital stock and the unimpaired surplus or to 60 percent of total time and savings deposits, whichever was greater. Congress raised the limit to 70 percent in 1962 and to 100 percent in August this year.

The Housing Act of 1964 increased the maximum maturity of conventional, fully-amortized real estate loans by national banks from 20 to 25 years and the maximum loan relative to the appraised value of the real estate (the loan-to-value ratio) from 75 to 80 percent. This was amended in the Emergency Home Finance Act of 1970 to permit national banks to make mortgage loans with a maximum maturity of 30 years and a maximum loan-to-value ratio of 90 percent. (FHA-insured and VA-guaranteed mortgage loans are exempt from the above limitations, and, they are not included in the amount of real estate loans that a national bank may make in relation to its capital and surplus or its time and savings deposits.)

The greatest change in loan terms as a result of this legislation has been in the required downpayment as measured by the average loan-to-price ratio. Although the characteristics of conventional mortgage loans vary with loan demand and the availability of credit, the average loan-to-price ratio of conventional mortgage loans made by commercial banks on new single-family homes increased from 66 percent to 73 percent during the five-year period from May 1969 to May 1974. The more liberal terms on real estate loans permitted banks to compete more effectively with other lenders and also enabled them to earn more on such loans. During the 1969-74 period, other major lenders also experienced some easing of loan terms but commercial banks had an increase of 146 basis points in the average effective yield, compared to an increase of 98 and 86 basis points for savings and loan associations and mortgage companies, respectively. Real estate loans have thus become more attractive than previously in the portfolios of commercial banks.

Congress increased the maximum maturity on construction loans for industrial or commercial buildings with a commitment for permanent financing and for residential or farm buildings from 18 to 24 months in 1965, to 36 months in 1968, and to 60 months in 1970. Such construction loans, within the maturity limitation, are classified as ordinary commercial loans whether or not secured by a mortgage, and may be invested in by a national bank up to an amount equal to the sum of the paid-in, unimpaired capital plus the unimpaired surplus. Construction loans which are made primarily on the general credit rating of the borrower, whether or not secured by a mortgage, were exempted from the limitations of real estate lending by Congress in 1959 and designated as ordinary non-real estate (now commercial) loans.

In addition to making loans for the purchase of real estate or for construction, national banks have been permitted to deal in, underwrite, and purchase for their own accounts without limitation and restriction selected investment securities which are housing-related. These include obligations issued by the Federal Home Loan Bank Board; obligations, participations, or other instruments of the Federal National Mortgage Association or of the Government National Mortgage Association; obligations of local public housing agencies issued by HUD; and, within certain limitations, obligations of state and local governments or agencies for financing housing.

The major housing legislation passed by Congress in August 1974, the first since 1970, has further liberalized the lending powers of banks as concerns real estate. In addition to higher limits on the aggregate amount of real estate loans, national banks are now authorized to place up to 20 percent of their capital and surplus in real estate loans which are not first mortgages. The total liens on an individual property cannot exceed the applicable loan-to-value ratio. The legislation also allows banks to finance loans of up to two-thirds of the appraised value on unimproved real estate and up to 75 percent on improved and to make construction loans of up to 75 percent of appraised value without the necessity of a commitment for permanent financing.

Where the money comes from

Time and savings deposits are one of the major sources of loanable funds for commercial banks. At the end of 1973, these deposits represented 62 percent of the total net deposit liabilities of banks—up from 45 percent ten years earlier. According to the Federal Reserve Flow of Funds Accounts, which trace the sources and uses of funds for sectors of the economy, 80 percent of the time and savings deposits of commercial banks are owned by households, with the balance owned primarily by businesses and state and local governments. Over the last ten years, 78 percent of the net *gain* in time and savings deposits at banks has been attributable to the household sector.

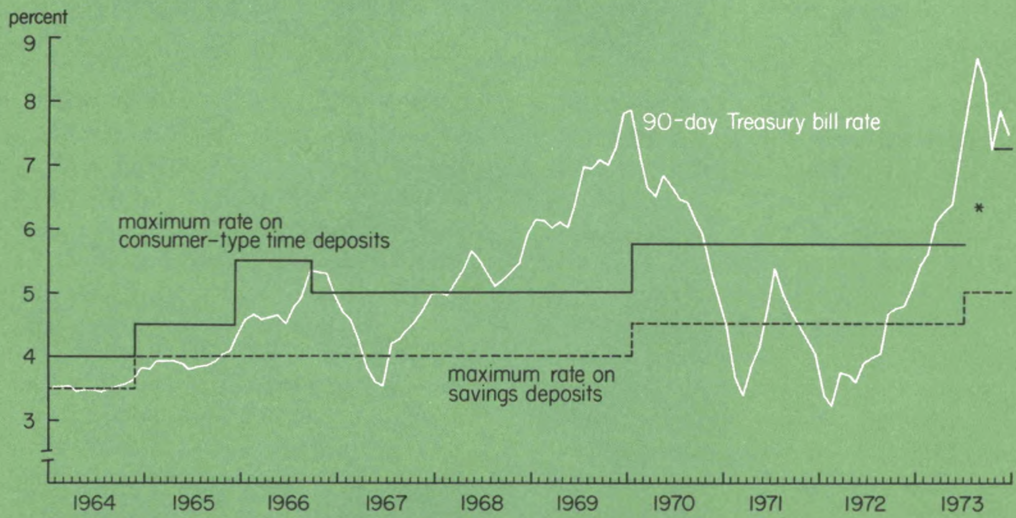
To attract these relatively long-term deposits of households, banks compete with other banks, with other financial intermediaries, and with all the direct investment opportunities that are available to individuals In the decade 1954-63, households, on average, put 75 percent of the annual increase in their savings dollars into banks and thrift institutions and 25 percent into such credit market instruments as federal government securities, state and local government obligations, corporate stocks and bonds, commercial paper, mortgages, and mutual funds. Since 1964, the changes in the financial assets of households at depository institutions and in direct investments have varied with the fluctuations in interest rates. During 1966, 1969, and to a lesser extent during 1973, households substantially increased the funds invested directly in market instruments because available yields were more attractive than the yields provided by savings deposits at banks and thrift institutions. In other years, as yields available on market instruments declined, the amount of household savings invested in credit market instruments showed only a small increase or, as in 1967, 1970, and 1971, actually declined.

The distribution of new household savings deposits between commercial banks and thrift institutions, including savings and loan associations, mutual savings banks, and credit unions, also has fluctuated widely over the past decade. On an annual average basis prior to 1964, commercial banks received 34 percent of such new deposits and S&Ls received 48 percent. In six of the last ten years, however, the increase in depository savings of households at commercial banks was larger than that at all thrift institutions combined. The share received by S&Ls in the 1964-73 period ranged from a low of 19 percent in 1966 to a high of 43 percent in 1972; the proportion going to mutual savings banks declined from 14 percent in the 1954-63 period to 13 percent in the 1964-73 period; credit unions maintained about 4 percent in both periods.

The underlying reason that banks have been more successful than other financial institutions in tapping various sources for time and savings deposits is a changed competitive environment. Successive increases in the maximum interest rates payable on time and savings deposits—up to 7¼ percent on certain accounts—and the total suspension of ceiling rates on time deposits of $100,000 or more have enabled commercial banks to compete more effectively with other savings institutions and with direct market investments for the funds of households, businesses, and state and local governments. The spread in the maximum rate payable on passbook savings between banks and S&Ls has narrowed from ¾ of 1 percent in 1966 to ½ of 1 percent currently. Moreover, banks have been extremely aggressive in developing savings instruments that carry attractive returns, i.e., certificates of deposits and open accounts. Probably in response to this more competitive stance, state and local governments supplied 18 percent and businesses 6 percent of the net gain in time and savings deposits at banks from 1970 through 1973. From 1964 through 1969, state and local governments supplied 6 percent and businesses 1 percent of the net gain in the time and savings deposits of banks.

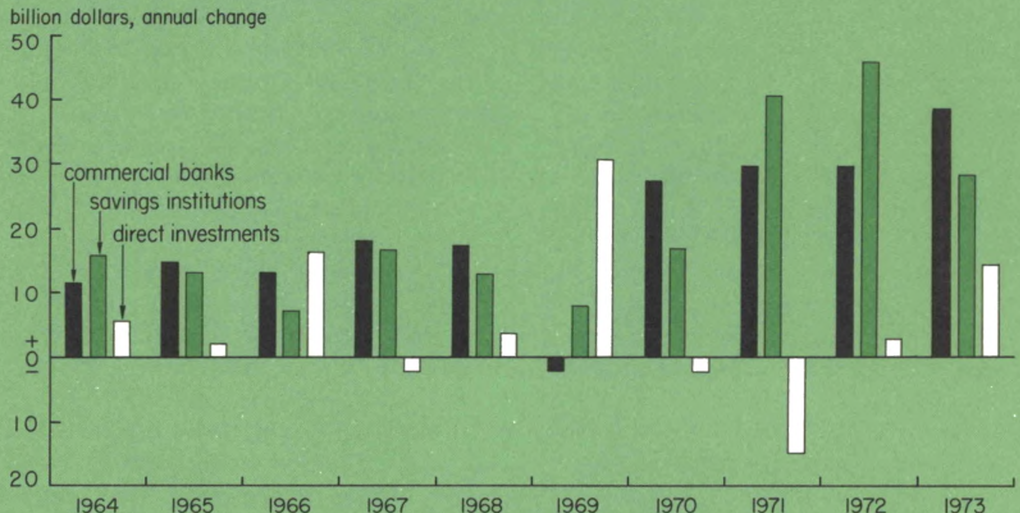
Since 1964, direct market investments have become increasingly attractive to households, particularly during "tight" money periods. Rates on short-term securities, as represented by the monthly average market yield on 90-day Treasury bills, have been on the upswing ever since 1966, and established successively higher peaks in 1968, 1969, 1970, and 1973. Rates on long-term securities, such as corporate bonds, have remained at historically high levels following the 1969-70 period. Nevertheless, the rates available on time deposits at commercial banks since 1970 and the convenience of bank deposit accounts have resulted in the sustained growth of time and savings deposits at banks.

Competitive interest rates on consumer-type bank accounts . . .



* no ceiling for four year certificates with $1,000 minimum

. . . led to sustained growth in household time and savings deposits at banks from 1970 through 1973



Bank size and location as factors

Not only have banks increased their share of real estate credit in the economy, but such loans represent an increasingly important component of bank assets. At the end of 1973, real estate loans were 26 percent of total loans at all commercial banks, compared to 24 percent at the end of 1970. The expansion of real estate loans continued even in the restrictive monetary environment of the first half of 1974. Outstanding real estate loans rose 5 percent during that period at the large commercial banks that report on conditions weekly in contrast with no net growth at these banks during the first half of 1970, when the ability of the banks to bid for loanable funds was severely constrained by rate ceilings.

The relative importance and type of real estate loans in the portfolios of commercial banks vary with the size of the bank. About $37 billion, or 31 percent, of commercial bank mortgage loans are held by banks with total deposits of $1 billion or more. Such loans, however, were equal to only 11 percent of their total domestic assets at year-end 1973, reflecting their heavier concentration in business lending. Furthermore, real estate loans have been expanding more slowly at these banks—they have accounted for one-fifth of the increase in total loans since the end of 1970 at the large banks, whereas real estate loans accounted for 37 percent of the increase at smaller banks.

The real estate loan portfolios of the largest banks traditionally have included a higher percentage of loans on residential properties—both one- to four-family and multifamily units—and a smaller percentage of loans on commercial properties and farmland than have the portfolios of smaller banks. During 1973, these very large banks furnished 41 percent and 87 percent of the increase in bank loans on one- to four-family and multifamily residential properties, respectively.

Large banks also have been substantial holders of government-underwritten mortgages. These comprised one-fourth of their residential loan portfolio at the end of last year, in contrast to an average of 10 percent for other banks. In 1973, these large banks were the only size group showing a net increase in government underwritten loans. Such loans accounted for 8 percent of their net increase in residential loans in 1973.

Banks with total deposits of under $25 million, many of which serve primarily rural communities, have 17 percent of their real estate loans secured by farmland and 23 percent secured by commercial properties. To state a rough relationship, as bank size increases up to $1 billion in total deposits, the share of loans secured by farmland decreases and the share secured by commercial properties increases.

Location is also a factor in the incidence of real estate loans. Such loans are more important for commercial banks in the Seventh District representing 16 percent of assets and 29 percent of total loans of commercial

Real estate loans are relatively most important at medium-sized banks

	Total deposits in millions						
	Under 25	25-50	50-100	100-500	500-1,000	1,000 and over	Total
	(percent of total as of December 31, 1973)						
Cash, bank balances, and reserves	10.7	10.7	11.4	13.7	13.7	16.9	14.2
Securities	31.7	29.2	27.9	24.1	21.5	16.9	22.6
Federal funds sold	6.2	4.1	4.2	4.8	5.0	3.2	4.2
Real estate loans	15.9	18.1	18.3	16.4	15.5	10.6	14.1
Commercial and industrial loans	9.4	12.9	15.2	16.9	20.0	25.0	19.1
Loans to individuals	14.7	17.3	16.4	14.7	13.1	7.7	12.0
Other loans	9.1	4.8	3.7	5.9	7.4	14.7	9.8
All other assets	2.3	2.9	3.1	3.5	3.9	5.0	4.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

SOURCE: FDIC.

Bank real estate loans are concentrated in conventional residential paper

	Total deposits in millions					
	Under 25	25-50	50-100	100-500	500-1,000	1,000 and over
	(percent of total as of December 31, 1973)					
Residential						
One- to four-family						
Conventional	56	55	52	47	43	44
FHA/VA	2	4	5	7	11	15
Multifamily						
Conventional	2	2	4	5	5	8
FHA/VA	*	*	*	1	2	2
Commercial	23	32	36	38	38	30
Farm	17	7	3	2	1	1
Total	100	100	100	100	100	100

*Less than 0.5 percent.
SOURCE: FDIC.

banks in the district, compared to 14 and 26 percent nationally. A larger share of the real estate loans in the district are on one- to four-family residential properties and a correspondingly lower share are on commercial properties. The proportion on multifamily residential properties and on farmland is about the same in the district as nationally.

Among the states and the major cities of the district, however, variation exists in the proportion of total resources invested in real estate loans by commercial banks and in the type of real estate loans made. Some of the variation in real estate lending is apparently related to differences in the structure of banking—prohibition of branch banking in Illinois and limited allowance of service offices in Iowa versus limited-area branch banking in Michigan and Wisconsin. Branches enable large city banks to reach suburban households and compete more effectively with the savings and loan associations for both time and savings deposits and mortgage loans. Some of the variation is related to the economy of the area. A larger fraction of the residential mortgages on properties in metropolitan areas are government-underwritten, particularly in Detroit and Des Moines where 21 percent and 18 percent, respectively, were FHA-insured or VA-guaranteed at the end of 1973. Mortgage loans on commercial properties represent a larger proportion of the real estate loan portfolios of commercial banks in most major metropolitan areas compared to the state as a whole. In Iowa, and to a lesser extent in Indiana and Wisconsin, real estate loans on farmland are considerably more important for commercial banks than elsewhere in the district and nationally.

In some instances, the difference may be due to banking practices. In the Milwaukee area, for example, a significantly larger proportion of mortgage loans (13 percent) are on multifamily residential properties than elsewhere.

Commercial banks and construction financing

Mortgage loans are not the only form of real estate financing provided by the commercial banking system. "Real estate loans" as reported in commercial bank statements of condition include all loans secured by mortgages, deeds of trust, land contracts or other liens on real estate. Loans to finance construction which are secured by a mortgage on the real estate without a commitment for permanent financing are usually classified as real estate loans. If, however, construction loans have a maximum maturity of 60 months and include a commitment for permanent financing, or are made primarily on the credit of the borrower, they are included with commercial and industrial loans.

Commercial banks are the largest supplier of financing for on-site construction. In 1971, the Federal Reserve System surveyed all member commercial banks

Real estate loans predominate in states with branch banking

	Illinois	Indiana	Iowa	Michigan	Wisconsin
	(percent of total as of December 31, 1973)				
Cash, bank balances, and reserves	10.8	12.1	12.0	12.1	9.9
Securities	25.6	26.2	29.0	24.1	25.1
Federal funds sold	4.5	7.4	6.8	2.6	4.4
Real estate loans	10.0	18.2	12.2	25.3	23.8
Commercial and industrial loans	23.0	12.3	10.5	13.5	15.7
Loans to individuals	8.7	14.9	10.3	12.9	11.0
Other loans	13.7	5.8	17.2	6.7	6.8
All other assets	3.7	3.1	2.0	2.8	3.3
Total	100.0	100.0	100.0	100.0	100.0

SOURCE: FDIC.

and all other banks with total deposits of $25 million and over to determine the extent of holdings of on-site construction loans relative to other types of real estate loans. The banks surveyed, which represented almost 90 percent of the total deposits of all commercial banks in the United States, reported a total of $9.2 billion in loans outstanding to finance construction. Of this total, $7.5 billion was included in real estate loans and $1.7 billion in commercial and industrial loans. Total construction loans relative to reported real estate loans varied directly with bank size, and with the type of property. As the size of the bank increased, a higher proportion of the real estate loans were for one-site construction. A substantial share of the loans on multifamily properties were for on-site construction. Estimates based on the results of this survey indicate that at the end of 1973, commercial banks were providing $16 billion in construction loans classified as real estate loans (as reported by HUD) and $3 billion classified as commercial and industrial loans. About half of the construction loans involved residential properties.

The total volume of commercial bank construction lending in a calendar year may be much higher than what is indicated by the outstandings at any given time, depending on the turnover or the average term of the construction loan. The average term of the construction loan varies with the type of property and may range from six months for a single-family home to over two years for an office building. At any one time, it is estimated that half of the loan commitment has been disbursed and the amount outstanding represents half of the total commitment. If the average term of the loan is six months, the volume of construction lending in a year could be four times the amount outstanding at any particular time.

Federal agency debt ownership

In recent years, several government and government-sponsored agencies have acted to moderate fluctuations in housing caused by "tight" credit conditions by supplying funds to the residential mortgage markets. The most important of the agencies—namely the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Bank Board (FHLBB) sell their obligations in the money and capital markets and make the funds available to the originators of mortgages. Fannie Mae supplies funds by purchasing mortgage loans, usually from commercial banks or mortgage bankers. The FHLBB makes direct loans to savings and loan associations.

Commercial banks are major purchasers of the obligations of these federal agencies. According to the Treasury Survey of Ownership of Federal Securities, the commercial banks that report to the Treasury on these matters held about 90 percent of all such securities held by banks. In 1973, these same banks purchased 28 percent of the increase in privately owned obligations of the Federal Home Loan Bank Board and at year-end owned 25 percent of the total outstanding. Over one-third of the 1973 increase in privately held Fannie Mae securities were purchased by the reporting banks, who held 27 percent of the outstandings at year-end. In addition, reporting commercial banks owned 28 percent of $5.4 billion privately held Farmers Home Administration securities, and 26 percent of $9.7 billion privately held Federal Land Bank securities. To the extent that the latter obligations provide financial assistance for farm homes, they support housing.

Housing related consumer instalment loans

During recent years, mobile homes have become increasingly important in the housing market and currently represent about one-third of the total new single-family housing units. Purchases of mobile homes by individuals are financed primarily with consumer instalment loans provided by banks and finance companies. A supplemental questionnaire with the June 30, 1970 commercial bank Call Report indicated that banks held $2.8 billion of mobile home credit for individuals at that time. Currently, statements of condition include information on retail consumer loans outstanding for the purchase of mobile homes. From mid-1970 to the end of 1973, such loans made by commercial banks tripled to $8.4 billion.

Some commercial banks in Seventh District states have been particularly active in providing mobile home financing. Indiana and Michigan are among the leaders in mobile home manufacturing and, as the industry developed, banks in these areas made mobile home loans on a nationwide basis. By the end of 1973, banks in those two states, which held 6 percent of all commercial bank assets in the United States, held 9 percent of mobile home loans outstanding at banks.

Commercial banks have also been a traditional source of consumer instalment loans for residential repair and modernization. At the end of 1973, there were $4.8 billion of such loans outstanding at commercial banks.

For the future

Commercial banks can be expected to continue to be an important source of real estate credit over the long term. Their ability to make real estate loans on increasingly liberal terms has enabled banks to compete more effectively for such loans and has increased the attractiveness of real estate loans as an earning asset in bank portfolios. As diversified investors, commercial banks not only provide mortgage loans but most forms of real estate credit with various maturities.

During periods of restrictive monetary policy, however, a temporary slowing in the growth of real estate loans at commercial banks is inevitable. The experience of banks in 1974 has demonstrated their ability to compete with direct market investments for savings flows. With legal constraints on rates reduced, bank time deposits, although slowed, have been quite well maintained, particularly at the larger banks that have access to funds in the money market. Real estate loans, however, must compete with business and other types of loans and with other investment opportunities. In addition, as interest rates rise, consumer resistance to a long-term commitment at higher rates also increases and home purchases are postponed. Although real estate loans outstanding at commercial banks continued to increase during the first half of 1974, this was largely a result of earlier commitments. The impact of this year's "tight" credit conditions on real estate loans will become more evident at commercial banks during the balance of the year.

Eleanor Erdevig

"New Math" of inflation— a 7 cent dollar?

So far in 1974, the Consumer Price Index (CPI)—the "cost-of-living index" used to escalate wage contracts and many other obligations—has averaged 11 percent above last year. This is almost double the 6 percent rise from 1972 to 1973.

Price inflation has tended to accelerate since 1964. The especially rapid rise in prices in the past two years has been paced by foods and petroleum products, but prices of virtually all goods and services have increased significantly.

Since 1964, the average annual rise in the CPI has been 5 percent. As a result, about $162 is now required to purchase a "basket" of goods and services that would have been purchased for $100 in 1964. In the decade 1954-64, the CPI rose at an average of less than 1.5 percent per year.

The tables on the following pages show the startling consequences of sustained high rates of price increases. Inflation, like any growth rate, follows the principle of compound interest, with increases pyramiding through time. In fact, the tables are both abstracted from *Financial Compound Interest and Annuity Tables,* published by the Financial Publishing Company. These tables do *not* represent predictions. They merely set forth the mathematical results of continuously rising prices.

Table 1 shows the rise in the price level that would occur, assuming inflation at a steady rate from 1 to 12 percent per year. The colored lines mark the time required for prices to double (D), triple (T), and quadruple (Q). Table 2 shows the other side of the inflation coin—the "purchasing power of the dollar," which is the reciprocal of the price index (the result of dividing the figures on Table 1 into 100). On Table 2, the colored lines show the time required for the dollar to lose one-half, two-thirds, and three-fourths of its value.

To illustrate use of the tables, assume that the 11 percent rate of price inflation of the past year continued for 26 years to the end of the century. Table 1 shows, second to the last column, that the price level would double by 1981, triple by 1985, quadruple by 1988, and be 15 times as high as now in the year 2000. Table 2 shows that, under an 11 percent rate of inflation, the dollar would buy half as much as now in 1981, one-third as much in 1985, one-fourth as much in 1988—and only 7 percent as much in 2000!

George W. Cloos

Table 1—Price inflation to the year 2000 assuming steady percentage rates of increase in the price level, 1974=100

Year	Percent 1	2	3	4	5	6	7	8	9	10	11	12	
1974	100	100	100	100	100	100	100	100	100	100	100	100	
1975	101	102	103	104	105	106	107	108	109	110	111	112	
1976	102	104	106	108	110	112	114	117	119	121	123	125	
1977	103	106	109	112	116	119	123	126	130	133	137	140	
1978	104	108	113	117	122	126	131	136	141	146	152	157	
1979	105	110	116	122	128	134	140	147	154	161	169	176	
1980	106	113	119	127	134	142	150	159	168	177	187	197	D
1981	107	115	123	132	141	150	161	171	183	195	208	221	
1982	108	117	127	137	147	159	172	185	199	214	230	248	
1983	109	120	130	142	155	169	184	200	217	236	256	277	T
1984	111	122	134	148	163	179	197	216	237	259	284	311	
1985	112	124	138	154	171	190	210	233	258	285	315	348	
1986	113	127	143	160	180	201	225	252	281	314	350	390	Q
1987	114	129	147	167	189	213	241	272	307	345	388	436	
1988	115	132	151	173	198	226	258	294	334	380	431	489	
1989	116	135	156	180	208	240	276	317	364	418	478	547	
1990	117	137	160	187	218	254	295	343	397	459	531	613	
1991	118	140	165	195	229	269	316	370	433	505	590	687	
1992	120	143	170	203	241	285	338	400	472	556	654	769	
1993	121	146	175	211	253	303	362	432	514	612	726	861	
1994	122	149	181	219	265	321	387	466	560	673	806	965	
1995	123	152	186	228	279	340	414	503	611	740	895	1,080	
1996	125	155	192	237	293	360	443	544	666	814	993	1,210	
1997	126	158	197	246	307	382	474	587	726	895	1,103	1,355	
1998	127	161	203	256	323	405	507	634	791	985	1,224	1,518	
1999	128	164	209	267	339	429	543	684	862	1,083	1,359	1,700	
2000	130	167	216	277	356	455	581	740	940	1,192	1,508	1,904	

Table 2—Purchasing power of the dollar to the year 2000 assuming steady percentage rates of increase in the price level, 1974=100

Year	Percent 1	2	3	4	5	6	7	8	9	10	11	12	
1974	100	100	100	100	100	100	100	100	100	100	100	100	
1975	99	98	97	96	95	94	93	93	92	91	90	89	
1976	98	96	94	92	91	89	86	86	84	83	81	80	
1977	97	94	92	89	86	84	82	79	77	75	73	71	
1978	96	92	89	85	82	79	76	74	71	68	66	64	
1979	95	91	86	82	78	75	71	68	65	62	59	57	
1980	94	89	84	79	75	70	67	63	60	56	53	51	1/2
1981	93	87	81	76	71	67	62	58	55	51	48	45	
1982	92	85	79	73	68	63	58	54	50	47	43	40	
1983	91	84	77	70	64	59	54	50	46	42	39	36	2/3
1984	91	82	74	68	61	56	51	46	42	39	35	32	
1985	90	80	72	65	58	53	48	43	39	35	32	29	
1986	89	79	70	62	56	50	44	40	36	32	29	26	3/4
1987	88	77	68	60	53	47	41	37	33	29	26	23	
1988	87	76	66	58	51	44	39	34	30	26	23	20	
1989	86	74	64	56	48	42	36	32	27	24	21	18	
1990	85	73	62	53	46	39	34	29	25	22	19	16	
1991	84	71	61	51	44	37	32	27	23	20	17	15	
1992	84	70	59	49	42	35	30	25	21	18	15	13	
1993	83	69	57	47	40	33	28	23	19	16	14	12	
1994	82	67	55	46	38	31	26	21	18	15	12	10	
1995	81	66	54	44	36	29	24	20	16	14	11	9	
1996	80	65	52	42	34	28	23	18	15	12	10	8	
1997	80	63	51	41	33	26	21	17	14	11	9	7	
1998	79	62	49	39	31	25	20	16	13	10	8	7	
1999	78	61	48	38	30	23	18	15	12	9	7	6	
2000	77	60	46	36	28	22	17	14	11	8	7	5