

# FEDERAL RESERVE BANK OF ST. LOUIS

AUGUST 1976



# REVIEW



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# Income and Expenses of Eighth District Member Banks: 1975

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**E**IGHTH District member banks experienced a moderate increase in net income in 1975, a year of recovery and restoration. The financial strength of banks in the Eighth District generally improved during the year. Capital cushions were built up and debt was reduced.

In the early 1970s when demand for credit was strong, many banks expanded their loans but frequently showed little growth in their capital accounts. Increased loan volume was accompanied, in many cases, by a reduction in cash assets and high grade short-term securities. However, in 1975 banks began to reverse previous trends, emphasizing more liquid instruments in their asset portfolios.

Net income of member banks in the Eighth Federal Reserve District rose 9 percent in 1975, slightly less than the 10 percent increase experienced in 1974.<sup>1</sup> A major factor accounting for this slower growth was the smaller volume of loans held by member banks. The effect on net income, however, was mitigated by lower interest expenses, which reflected both a reduced volume of obligations of member banks and lower average rates paid on them.

In general, Eighth District member banks fared better than the average of all member banks. Net income of all member banks in the nation rose 3.4 percent in 1975, less than half that for District member banks. Primarily because of greater declines in loan revenue, operating income of all member banks fell nearly 5 percent, unlike that of District banks which posted a slight gain. Operating expenses in the aggregate dropped more rapidly than income despite a 64 percent increase in loan loss provisions. By contrast, expenses of District member banks showed little change from 1974. The resulting income of all member banks before securities gains and losses increased 1.4 percent, slightly slower than that for District member banks.

<sup>1</sup>Income and expense items in this article have been adjusted to exclude one bank. Inclusion of this bank, which experienced unusual conditions, would have made the totals for Eighth District member banks unrepresentative and comparisons less meaningful.

## OPERATING INCOME AND BANK ASSETS

Operating income of Eighth District member banks totalled \$1,581 million in 1975, an increase of less than one percent over 1974 (see Table I). By comparison, operating income in 1974 was 29 percent higher than a year earlier. The smaller rise in income in 1975 was the net result of several developments. A restraining force was the 1.3 percent decrease in the volume of loans held by member banks.<sup>2</sup> The smaller volume, combined with an average rate of return on loans which remained essentially unchanged during the year, resulted in a 2.3 percent decrease in bank earnings on loans. A year earlier, this source of revenue, which is a major portion of total operating income, increased 29 percent.

The volume of total loans outstanding at member banks in the District declined \$149 million to \$11.6 billion in 1975. Commercial and industrial loans, the largest single category of loans, registered a 3.4 percent decrease from 1974—to \$3.6 billion. Loans to individuals posted a slight decline; outstanding automobile installment loans fell by about 1 percent, while consumer loans remained essentially unchanged. While real estate loans held by Eighth District member banks increased to \$3.4 billion in 1975, a rise of 6.8 percent over a year earlier, loan movements were mixed. Loans on one-to-four-family residences showed a 10.3 percent increase, but loans on multi-family property declined by 15 percent.

With the decline in loan volume and an increase in other investments, loans outstanding of District members banks, including Federal funds sold and securities purchased under agreements to resell, accounted for a smaller proportion of total assets in 1975 than in 1974. The share of total assets represented by loans declined about 2 percentage points to 54.6 percent. The proportion of loans to total assets was greater for larger banks than for smaller banks, ranging from an average of 58.3 percent for those banks with \$100 million or more in deposits to

<sup>2</sup>All comparisons of assets, liabilities, and capital in this article are made as of December 31 of each year.

Table I

**INCOME AND EXPENSES OF MEMBER BANKS IN THE  
EIGHTH FEDERAL RESERVE DISTRICT\***

	Thousands of Dollars			Percent Change	
	1975	1974	1973	1974-75	1973-74
<b>Total Operating Income</b> .....	<b>\$1,581,249</b>	<b>\$1,572,146</b>	<b>\$1,222,821</b>	<b>0.6%</b>	<b>28.6%</b>
Income from Loans .....	952,675	974,758	755,395	- 2.3	29.0
Income from Federal Funds Sold and Securities Purchased Under Resale Agreement .....	96,318	148,736	85,155	-35.2	74.7
Income from Securities .....	344,156	292,321	257,575	17.7	13.5
U.S. Treasury Securities .....	119,096	101,020	104,116	17.9	- 3.0
Other U.S. Government Securities .....	79,443	67,878	49,701	17.0	36.6
States and Political Subdivisions .....	138,706	117,551	97,545	18.0	20.5
Other Securities .....	6,911	5,872	6,213	17.7	- 5.5
Trust Department Income .....	30,936	27,756	27,566	11.5	0.7
Service Charges on Deposit Accounts .....	31,917	30,099	27,896	6.0	7.9
Other Operating Income .....	125,247	98,475	69,233	27.2	42.2
<b>Total Operating Expenses</b> .....	<b>1,344,475</b>	<b>1,339,036</b>	<b>1,006,079</b>	<b>0.4</b>	<b>33.1</b>
Interest on Deposits .....	610,381	585,241	423,456	4.3	38.2
Other Interest Expenses .....	6,443	13,895	9,656	-53.6	43.9
Expense of Federal Funds Purchased and Securities Sold Under Repurchase Agreement .....	111,605	198,481	110,517	-43.8	79.6
Salaries, Wages and Benefits .....	283,602	258,815	226,933	9.6	14.0
Provision for Loan Losses .....	55,342	37,407	22,581	47.9	65.7
Other Operating Expenses .....	277,102	245,197	212,936	13.0	15.2
<b>Income Before Income Taxes and Securities Gains (or Losses)</b> ...	<b>236,774</b>	<b>233,110</b>	<b>216,742</b>	<b>1.6</b>	<b>7.6</b>
Less Applicable Income Taxes .....	42,798	49,322	51,222	-13.2	- 3.7
<b>Income Before Securities Gains (or Losses)</b> .....	<b>193,976</b>	<b>183,787</b>	<b>165,520</b>	<b>5.5</b>	<b>11.0</b>
Net Securities Gains (or Losses) After Taxes .....	888	- 2,252	211	—	—
Extra Charges or Credits After Taxes .....	2,389	- 119	- 738	—	—
Less Minority Interest in Consolidated Subsidiaries .....	21	- 11	20	—	—
<b>Net Income</b> .....	<b>197,232</b>	<b>181,428</b>	<b>164,973</b>	<b>8.7</b>	<b>10.0</b>
Cash Dividends Paid .....	70,786	63,404	57,220	11.6	10.8
Number of Banks .....	427	429	430	- 0.5	- 0.2

\*Income and expense items have been adjusted to exclude one bank. Inclusion of this bank would have made the resulting totals for Eighth District member banks unrepresentative.

an average of 46.7 percent for those banks with less than \$5 million in deposits.<sup>3</sup>

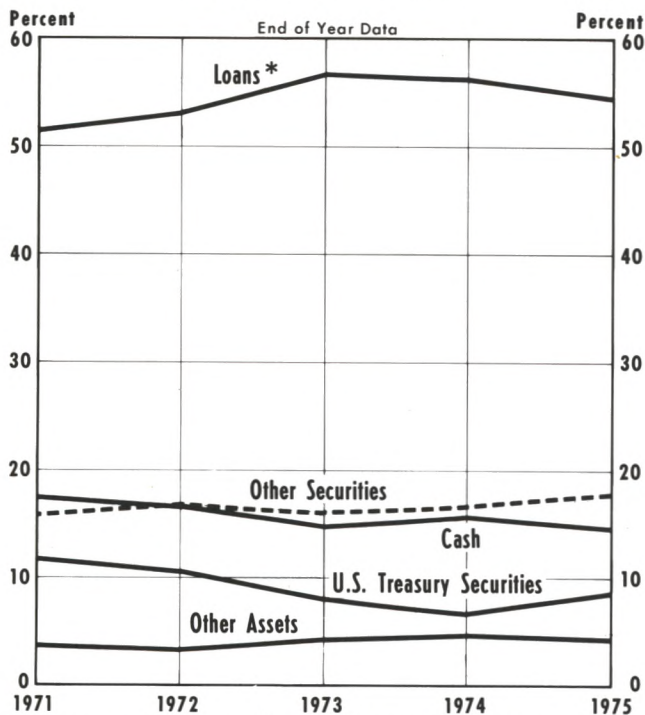
The proportion of securities in the asset portfolios of District member banks rose in 1975, emphasizing the increased importance placed on more liquid assets. The proportion of Treasury securities increased 2 percentage points to 8.7 percent of total assets, reversing the downward trend experienced since 1972. Other securities, including obligations of U.S. Government agencies and corporations and those of states and political subdivisions, increased to 17.8 percent from 16.7 percent of total assets.

<sup>3</sup>Averages for groups of banks presented in this article are unweighted averages of individual banks' operating ratios. Balance sheet items used in constructing these ratios are averages of the figures from the Reports of Condition of December 1974 and June and December 1975. Where appropriate, the bank referred to in footnote 1 has been excluded.

Since there was little change in the average realized rates of return on securities, the increased holdings resulted in an 18 percent increase in income from this source. Earnings on all securities totalled \$344 million in 1975; this represented 22 percent of total operating income, up from 19 percent a year earlier. Holdings of U.S. Treasury securities, which accounted for one-third of all investments, rose 35 percent over 1974. The average rate of return on Treasury securities remained about 6.7 percent in 1975.

Earnings from other securities also rose during the year. Income from U.S. Government corporation and agency securities grew 17 percent, due partly to a 6 percent increase in volume and partly to an increase in the average rate of return—from 6.3 to 6.8 percent. Similarly, earnings from obligations of states and political subdivisions rose 18 percent over

**Distribution of Assets**  
Eighth District Member Banks



\*Including Federal Funds sold and securities purchased under resale agreement.

1974, with holdings increasing 6 percent and the average rate of return rising 50 basis points to 4.8 percent. The income provided by these two types of securities rose to 14 percent of total operating income in 1975, compared to 12 percent a year earlier.

Income from Federal funds sold (overnight advances to other banks) and securities purchased under resale agreements, which accounted for 6 percent of member bank income, fell 35 percent in 1975. This drop, amounting to \$52 million, primarily reflected a decline in the Federal funds rate. In 1975 the rate averaged 5.8 percent, compared to 10.5 percent in 1974.

Operating income of banks also includes income from trust department operations. In 1975, earnings from this source rose 11.5 percent. While it is a relatively minor source of operating income for District member banks in the aggregate, contributing an average of only about 0.6 percent, trust income of banks with \$100 million or more in deposits accounted for an average of 2.5 percent of their total operating income.

Earnings from service charges on deposit accounts grew 6 percent over 1974, only slightly slower than

in the previous year. Income from all other sources, including other fees and service charges and interest on time deposits at other banks, increased 27 percent. These items, however, are relatively minor sources of bank earnings.

**OPERATING EXPENSES AND BANK LIABILITIES**

Total operating expenses of Eighth District member banks showed little change in 1975, rising 0.4 percent to \$1,334 million. This compares to a 33 percent increase in 1974. Greater outlays for interest on time and savings deposits, wages and salaries, and provisions for loan losses were largely offset by smaller outlays for borrowed funds.

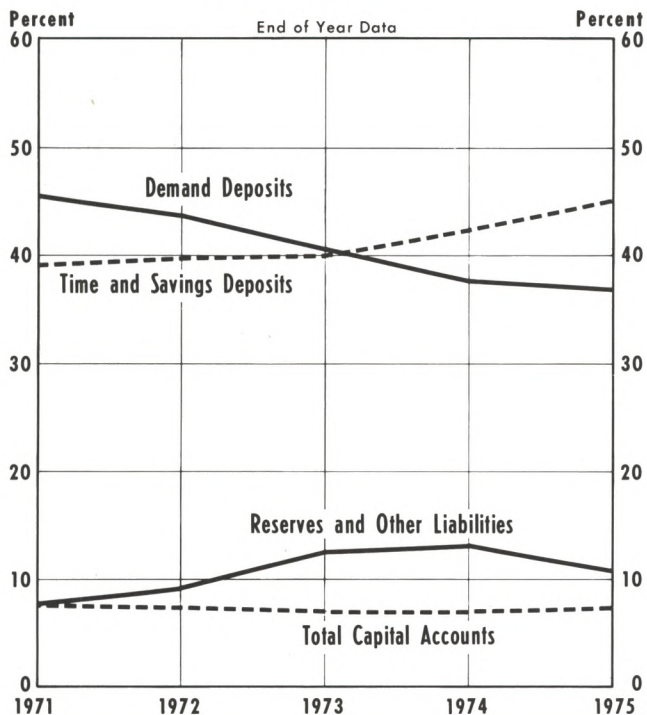
Interest on time and savings deposits, which accounted for 45 percent of member bank expenses, totalled \$610 million in 1975. This represents a 4 percent rise over 1974, compared to an increase of 38 percent a year earlier. The slower growth experienced during the year can be attributed to the slower growth of time and savings deposits coupled with the relatively stable average rates paid on these funds. Total time and savings deposits of District member banks rose 11 percent in 1975 to \$11.2 billion, compared to an increase of 14 percent a year earlier. The average interest rate paid on these deposits remained essentially unchanged, at 5.7 percent. Savings deposits, which account for 31 percent of total time and savings deposits, rose 19 percent over 1974. Part of this increase may be attributed to a regulatory change introduced in 1975 which allowed corporations to hold up to \$150,000 in savings deposits.

Despite the slower growth of time and savings deposits in 1975, the ratio of these deposits to total liabilities continued to rise, emphasizing the shifting composition of liabilities. The share of total liabilities accounted for by time and savings deposits increased 3 percentage points in 1975, to 49 percent. Demand deposits, on the other hand, registered much slower growth. IPC (individuals, partnerships, and corporations) demand deposits rose 4.8 percent in 1975, while total demand deposits grew by 2.4 percent. The share of total liabilities accounted for by total demand deposits declined slightly to 40 percent of bank liabilities.

Although the amount of interest paid on time and savings deposits increased in 1975, other interest expenses declined. The interest expense from Federal funds purchased (funds borrowed from other banks) and securities sold under repurchase agreements, for

### Distribution of Liabilities, Reserves, and Capital Accounts

Eighth District Member Banks



example, dropped 44 percent in 1975. This decline reflects the lower level of interest rates charged for these funds, as noted earlier. Interest expenses on capital notes and debentures and other borrowed money fell 54 percent during 1975. This is due in part to a decrease in the amount of bank borrowing. Liabilities for borrowed money, including Federal funds purchased, fell by 14 percent.

Provision for loan losses is another item classified as an operating expense. Banks maintain a reserve fund for loan losses by charging to current earnings an amount equal to the average of loan losses experienced over the past several years. In years when loan losses are small compared to past experience, provision for loan losses increases the reserve fund available to absorb larger losses when they occur. As losses are written off, they are charged against this reserve instead of directly against current earnings, allowing the loan loss reserve to absorb the shock of unusual losses in a given year.

Reflecting the recession and uncertain financial climate, banks have made substantial increases in the provisions for bad debts in the last two years. In 1975, the provision for loan losses increased 48 percent over 1974, to \$55 million. A total of \$12 million

in loans, which had been written off earlier but were recovered in 1975, and \$7 million transferred from capital accounts also contributed to increased reserves. Losses charged to these reserves in 1975 amounted to \$61 million. On balance, reserves on loans and securities increased 2 percent. In 1974, the provision for loan loss reserves increased 66 percent to \$37 million, while losses charged against reserves totalled \$41 million.

Additional operating expenses registered increases during the year. Salaries, wages, and fringe benefits, a major portion of operating expenses, increased about 10 percent to \$284 million. The increase in this category, which represents 21 percent of operating expenses, can be broken down into a 9 percent increase in total wages and salaries paid and a 12 percent increase in pensions and other employee benefits. The number of officers and employees rose from 28,804 to 33,442 in 1975. Other operating expenses, including occupancy, furniture, and equipment costs, totalled \$277 million, 13 percent higher than in 1974.

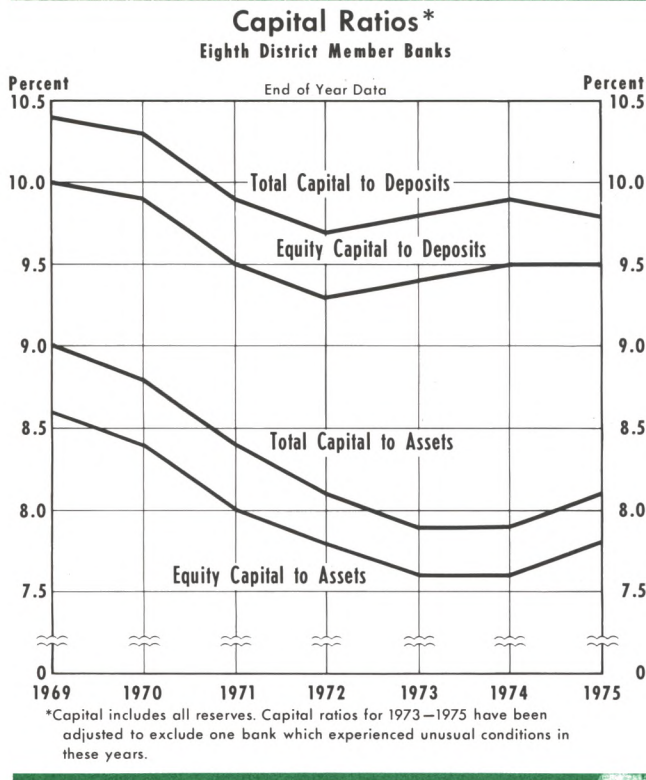
### NET INCOME

Before income taxes and securities gains or losses, net income of Eighth District member banks totalled \$237 million in 1975, an increase of 1.6 percent over 1974. Income taxes of \$43 million were paid, a 13 percent reduction from 1974. Securities gains and other credits, net of taxes, materially boosted earnings, contributing \$3.3 million. After adjusting for the net effect of taxes, securities gains, and extraordinary items, net income of member banks increased 9 percent to \$197 million in 1975.

Member banks paid cash dividends on common and preferred stock of \$71 million, a rise of 11.6 percent over 1974. Cash dividends paid represented 36 percent of net income for all banks, but varied widely by size of banks. Banks with \$5-10 million in deposits paid cash dividends averaging 18 percent of net income while banks with deposits totalling \$100 million or more paid dividends amounting to 44 percent of net income.

The average rate of return on equity capital, including all reserves, declined in 1975 to 11.2 percent from 12.2 percent a year earlier. By size of bank, this rate varied from an average of 6.7 percent for banks with less than \$5 million in deposits to 12.3 percent for banks with \$25-50 million in deposits. Those banks with deposits of \$100 million or more had an average return of 10.5 percent.

**CAPITAL ACCOUNTS AND BANK RATIOS**



Total capital of District member banks increased 7.4 percent in 1975 to \$1,777 million. Equity capital, which accounts for the major portion of total capital, rose 8 percent. After cash dividends of \$71 million were paid, net retained earnings — the primary source of equity capital — amounted to \$126 million, 7 percent higher than in 1974.

Movements of capital ratios were mixed in 1975. While total assets grew 5 percent, total capital rose at a faster 7 percent rate, resulting in an increase in the capital to asset ratio from 7.9 to 8.1 percent. The equity capital to asset ratio also posted an increase, rising 0.2 percentage points to 7.8 percent. These increases represent the first upward movement in these ratios in several years. In 1974 these ratios had leveled off after a period of decline.

Total deposits, on the other hand, grew more rapidly than either of the capital measures. This resulted in a slight decline in the total capital to deposit ratio to 9.8 percent. The ratio of equity capital to deposits remained essentially unchanged at 9.5 percent.



# The U.S. Dollar in International Markets: Mid - 1970 to Mid - 1976

DONALD S. KEMP

ONE of the most controversial issues in the area of international trade and finance has been that of the relative desirability of fixed versus floating exchange rates. Disagreement on this issue is widespread and has been, in the recent past, the major stumbling block to a general agreement within the International Monetary Fund (IMF) regarding the future form of the international payments mechanism.

This article addresses four issues related to the recent experience with generally floating exchange rates between the U.S. dollar and the currencies of nine of the United States' major trading partners.<sup>1</sup> The intervention activities of the Federal Reserve System in recent years are analyzed in order to get some idea of the extent to which exchange rates have been managed. Next, the question of measuring how much exchange rates have actually fluctuated in recent years is addressed. Some criteria are developed for and employed in evaluating whether the observed changes should be regarded as excessive. Finally, the issue of the likely causes of the observed exchange rate changes is explored.

## *Fixed Versus Floating Exchange Rates: The Issues*

The theoretical arguments which surround the issue of fixed versus floating exchange rates are all well-known and will be discussed only briefly here.<sup>2</sup> On one side of this issue there are the fixed rate advocates who contend that exchange rate changes un-

der a system of floating rates will be largely the result of speculation rather than the result of changes in fundamental economic factors.<sup>3</sup> This speculation, in turn, is presumed to be destabilizing. In other words, instead of dampening fluctuations in exchange rates, speculation will make the rates unnecessarily erratic. Furthermore, it is feared that these speculatively generated exchange rate changes will be so large and unpredictable as to disrupt international trade and investment.

On the other side of this issue are the floating rate advocates, who say that while exchange rates will change under a floating rate system, they will do so primarily in response to changes in fundamental economic factors. These individuals maintain that while speculation will undoubtedly occur in foreign exchange markets under a system of floating rates, such speculation will, on balance, not be destabilizing. In other words, speculation will have the effect of dampening fluctuations in exchange rates as they respond to changes in these fundamental factors.<sup>4</sup>

If the empirical evidence of the past few years shows that a significant portion of the fluctuation in exchange rates has been independent of changes in fundamental factors, then such fluctuations should be viewed with concern. On the other hand, if exchange rates have fluctuated in a pattern consistent with changes in fundamental factors, there is much less cause for concern. In such a case, the candidates for government stabilization actions are not the exchange rates themselves, but rather the underlying factors

<sup>1</sup>It is crucial from the outset that the reader recognize that the recent experience with floating exchange rates differs significantly from an experiment with the pure "freely floating" exchange rates dealt with in most of the theoretical literature. For one thing, some of the currencies analyzed in this article were officially pegged to others during all or part of the period covered by the study. For another, the rates have been "managed" through official market interventions rather than left alone to float completely free in response to nongovernmental market influences.

<sup>2</sup>For a discussion of the arguments for and against floating exchange rates, see M. O. Clement, Richard L. Pfister, and Kenneth J. Rothwell, *Theoretical Issues in International Economics*, ed. Jesse W. Markham (Boston: Houghton Mifflin Company, 1967), pp. 249-83; and Gottfried Haberler, Henry C. Wallich, Peter B. Kenen, Milton Friedman, and Fritz Machlup, "Round Table on Exchange Rate Policy," *The American Economic Review* (May 1969), pp. 357-69.

<sup>3</sup>The fundamental factors affecting exchange rates in the long run are relative rates of inflation and monetary expansion. These factors are considered fundamental in the sense that their impact on exchange rates can be justified on the basis of economic theory alone.

<sup>4</sup>For a theoretical discussion of the question of the stability of foreign exchange markets, see Kurt F. Hausafus, "Trade Finance, Capital Movements and the Stability of the Foreign Exchange Market," *International Economic Review* (June 1975), pp. 404-14. For an empirical evaluation of the stability issue, see Jerome L. Stein and Edward Tower, "The Short-Run Stability of the Foreign Exchange Market," *The Review of Economics and Statistics* (May 1967), pp. 173-85; and Michael P. Dooley and Jeffrey R. Shafer, "Analysis of Short-Run Exchange Rate Behavior, March 1973 to September 1975," *International Finance Discussion Papers*, International Finance Division, Board of Governors of the Federal Reserve System, No. 76 (February 1976).

Table 1

**TREASURY AND FEDERAL RESERVE FOREIGN EXCHANGE OPERATIONS<sup>1</sup>**  
**March 1971 — April 1976**  
(Millions of U.S. Dollars)

Time Period	Total Purchases	Total Sales	Net Purchases	Total Intervention
February 1976 — April 1976	\$301.4	\$ 270.4	\$ 31.0	\$ 571.8
August 1975 — January 1976	227.2	106.5	102.7	333.7
February 1975 — July 1975		1,045.0	-1,045.0	1,045.0
August 1974 — January 1975		742.3	- 742.3	742.3
February 1974 — July 1974	3.7	527.0	- 523.3	530.7
August 1973 — January 1974	584.2	247.5	336.7	831.7
March 1973 — July 1973		273.5	- 273.5	273.5
October 1972 — February 1973	215.0	339.0	- 144.4	554.0
April 1972 — September 1972	299.5	41.7	257.8	341.2
October 1971 — March 1972	55.0		55.0	55.0
March 1971 — September 1971		75.7	- 75.7	75.7

Time Period	Belgian Franc		French Franc		German Mark		Japanese Yen		Netherlands Guilder		Swiss Franc		U.K. Pound	
	P	S	P	S	P	S	P	S	P	S	P	S	P	S
Feb. 1976 — April 1976	\$74.9	\$	\$	\$	\$173.7	\$250.8	\$	\$	\$19.6	\$19.6	\$ 33.2	\$	\$	\$
Aug. 1975 — Jan. 1976	74.4				149.7	106.5					3.1			
Feb. 1975 — July 1975		29.8		45.6		740.6				96.3		132.8		
Aug. 1974 — Jan. 1975		16.2				619.2				43.3		63.6		
Feb. 1974 — July 1974		21.2		33.7	3.7	469.8				2.3				
Aug. 1973 — Jan. 1974	36.2		33.1		510.6	244.6	4.3			2.9				
March 1973 — July 1973		6.0		47.0		220.5								
Oct. 1972 — Feb. 1973	80.0					318.6			20.4	135.0				
April 1972 — Sept. 1972		10.2				21.4								299.5
Oct. 1971 — March 1972	20.0													35.0
March 1971 — Sept. 1971						75.7								

P — Purchases

S — Sales

<sup>1</sup>Canada and Italy are not listed separately in this table because no data relating specifically to these countries were available.

that contribute to the fluctuations. Indeed, if exchange rate changes reflect movements in macroeconomic conditions within countries, such changes in exchange rates have been beneficial in terms of dampening the international transmission of economic disturbances.<sup>5</sup>

### Intervention Activities

During the period covered in this article, exchange rates were neither absolutely fixed at an officially specified level nor were they allowed to float completely free of official foreign exchange market in-

tervention. Such an arrangement has come to be known as "managed floating". In fact, many advocates of a freely floating exchange rate system argue that the present exchange rate system has been so highly "managed" that its performance is not a fair measure of how a "freely floating" exchange rate system would work if fully adopted.

Because of the sparseness of information relating to the intervention activities of the United States and its major trading partners, it is difficult to assess the validity of the above argument. The only official source of information regarding foreign exchange market intervention activities is a quarterly report issued by the Federal Reserve Board of Governors.<sup>6</sup>

<sup>5</sup>This is a fundamental assertion of the advocates of flexible exchange rates. The supporting arguments can be found in Milton Friedman, "The Case for Flexible Exchange Rates," *Essays in Positive Economics* (Chicago: The University of Chicago Press, 1953), pp. 157-203; and Harry G. Johnson, "The Case for Flexible Exchange Rates, 1969," this *Review* (June 1969), pp. 12-24.

<sup>6</sup>This information can be found in a series of reports titled "Treasury and Federal Reserve Foreign Exchange Operations." These reports are usually published in the March, June, September, and December issues of the *Federal Reserve Bulletin*.



In addition to being highly aggregated with respect to U.S. activities, the figures given in these reports almost completely exclude the activities of other central banks. Since other central banks have, in total, intervened in foreign exchange markets with much greater frequency and in much larger dollar amounts than the United States, the numbers provided in these reports underestimate the total amount of intervention that has taken place. However, since it is reasonable to suppose that the United States and other countries take cooperative action and thus intervene on the same side of the markets, these numbers should at least give an indication of the general thrust of worldwide intervention activities during a given period. The data reported in Table I have been gleaned from the Federal Reserve reports.

Recognizing these caveats, there are still some interesting patterns which show up in Table I. First, the currencies in which the System has undertaken the greatest amount of intervention are those that have fluctuated the most (see Table II).<sup>7</sup> Secondly, the total amount of intervention undertaken by the Federal Reserve in the generalized float period (after March 1973) is actually greater than the amount undertaken prior to the generalized float. However, since this observation is based on data having significant shortcomings, firm conclusions should be drawn with care.

### *How Much Have Exchange Rates Actually Fluctuated?*

In investigating the extent to which exchange rates have actually fluctuated in recent years, the concern is not with the net change in exchange rates over long intervals of time, but rather with how much they have fluctuated over short intervals. The reason for concentrating on short intervals (a day, a month, or a quarter) is that it is the short-term fluctuations that are most often attributed to destabilizing speculative forces and are of greatest concern to those engaged in international commerce.

The daily exchange rates between the U.S. dollar and the currencies of the United States' largest trading partners are used to measure the amount of exchange rate fluctuation that has actually been experienced during the past few years. Monthly

averages of these daily exchange rate levels were computed for the time period covering June 1970 through June 1976, and quarterly averages of these monthly levels were computed from the second quarter of 1970 through the second quarter of 1976. The statistical distributions of the percentage changes in these daily, monthly, and quarterly series were then analyzed.<sup>8</sup> The results are presented in Table II.<sup>9</sup>

The first set of results covers the period beginning approximately with the floating of the Canadian dollar in June 1970 and ending in June 1976. The second set of results covers the period June 1970 through February 1973, just prior to the beginning of the current generalized float. The last set of results covers the period of the generalized float (March 1973-June 1976).

### *Evaluation of Measured Variability*

Unfortunately, there exists no consensus regarding what constitutes excessive exchange rate fluctuations. Hence, there is no standard against which the fluctuations of the past few years can be compared. The approach adopted here is to assume that the fixed bands agreed upon in the Smithsonian accord represent at least a loose consensus on acceptable short-run ranges for exchange rate fluctuations. The performance of exchange rates over the past few years is then compared with these bands.

At the Smithsonian meetings of December 1971, the members of the Group of Ten agreed to permit their currencies to fluctuate within a 2.25 percent range on each side of mutually acceptable central values. In other words, it was agreed that the value of each of the currencies of the United States' major trading partners would be allowed to fluctuate within

<sup>8</sup>The distributions of the *absolute values* of percentage changes were also analyzed. However, there was no significant difference between these results and those of the *actual* exchange rate changes analyzed in this article.

<sup>9</sup>It is usually assumed that data on daily exchange rate changes are normally distributed. Furthermore, upon invoking the Central Limit Theorem, the same assumption is usually made about the distribution of the changes in the monthly and quarterly averages of daily exchange rates. However, the assumption of normality of daily exchange rate changes has been questioned recently by Janice M. Westerfield, "Empirical Properties Of Foreign Exchange Rates Under Fixed and Floating Rate Regimes," *Philadelphia Fed Research Papers* (December 1975).

An analysis of the third and fourth moments about the mean of the data employed in this study leads to no firm conclusions regarding the validity of the normality assumption. However, as expected, the assumption seems to have greater justification in the case of monthly and quarterly averages than in the case of daily levels. Thus, the normal model may not be the most accurate description of the distribution of exchange rate changes. If it is not, then the usefulness of the means and variances reported in Table II is diminished.

<sup>7</sup>The interpretation of this observation is a matter of dispute. Many floating rate advocates maintain the possibility that the intervention itself was a source of confusion in foreign exchange markets and, therefore, exacerbated exchange rate movements. On the other hand, many analysts contend that the rates would have fluctuated much more had the intervention not taken place.

Table II

Distribution of Percentage Changes in Exchange Rates Between  
the U.S. Dollar and the Currencies of Its Major Trading Partners

Time Period and Time Interval	Statistic	Belgium	Canada	France	Germany	Italy	Japan	Nether- lands	Switzer- land	U.K.
Daily Changes from June 1, 1970 to June 30, 1976 (1494 Observations)	Mean	0.016%	0.007%	0.012%	0.025%	-0.018%	0.013%	0.020%	0.039%	-0.019%
	Std. Dev.	0.526	0.177	0.540	0.552	0.465	0.446	0.476	0.588	0.389
Monthly Changes from June 1970 to June 1976 (73 Observations)	Mean	0.335	0.136	0.239	0.507	-0.387	0.268	0.415	0.798	-0.408
	Std. Dev.	2.336	0.715	2.397	2.720	2.120	1.961	2.403	2.576	1.751
Quarterly Changes from II/70 to II/76 (25 Observations)	Mean	1.034	0.376	0.760	1.588	-1.164	0.773	1.259	2.299	-1.068
	Std. Dev.	4.316	1.369	4.481	5.090	4.090	3.409	4.174	4.418	3.742
Daily Changes from June 1, 1970 to February 28, 1973 (669 Observations)	Mean	0.035	0.012	0.030	0.038	0.016	0.046	0.037	0.049	0.006
	Std. Dev.	0.301	0.208	0.342	0.373	0.195	0.488	0.295	0.301	0.245
Monthly Changes from June 1970 to February 1973 (33 Observations)	Mean	0.538	0.230	0.458	0.584	0.279	0.799	0.566	0.728	0.038
	Std. Dev.	1.255	0.766	1.447	1.286	0.601	1.844	1.335	1.798	1.296
Quarterly Changes from II/70 to I/73 (12 Observations)	Mean	1.506	0.620	1.284	1.756	0.747	2.123	1.557	1.931	0.083
	Std. Dev.	2.475	1.256	2.577	2.309	1.096	3.109	2.415	2.889	2.592
Daily Changes from March 2, 1973 to June 30, 1976 (824 Observations)	Mean	0.001	0.003	-0.004	0.013	-0.048	-0.013	0.007	0.032	-0.040
	Std. Dev.	0.654	0.148	0.658	0.662	0.597	0.408	0.583	0.744	0.474
Monthly Changes from March 1973 to June 1976 (40 Observations)	Mean	0.168	0.058	0.058	0.444	-0.937	-0.170	0.290	0.856	-0.775
	Std. Dev.	2.952	0.670	2.969	3.506	2.705	1.968	3.027	3.096	1.994
Quarterly Changes from II/73 to II/76 (13 Observations)	Mean	0.598	0.151	0.276	1.433	-2.928	-0.473	0.984	2.639	-2.131
	Std. Dev.	5.587	1.479	5.792	6.846	5.033	3.298	5.415	5.580	4.393

a 4.5 percent band vis-a-vis the U.S. dollar.<sup>10</sup> Therefore the 4.5 percent band is used here as a standard for evaluating the degree of the exchange rate fluctuation during the past few years.<sup>11</sup>

A review of Table II indicates that in no instance did the mean of the percentage change in the exchange rate of the U.S. dollar vis-a-vis each of the

other nine currencies exceed 4.5 percent over either daily, monthly, or quarterly intervals. In addition, in no instance did the standard deviation of the percentage exchange rate changes exceed 4.5 percent for either the daily or monthly data.

In the case of quarterly data for Belgium, France, Germany, Italy, Switzerland, and the Netherlands, however, the standard deviation did exceed 4.5

<sup>10</sup>While each currency was restricted to a 4.5 percent band vis-a-vis the U.S. dollar, each could fluctuate by up to 9 percent vis-a-vis a third currency. For example, suppose currency A was at the top of its 4.5 percent band and currency B was at the bottom of its 4.5 percent band vis-a-vis the dollar. If these two currencies were to switch positions within their respective bands, the value of each would change by 9 percent relative to one another while changing by only 4.5 percent relative to the U.S. dollar. For these same reasons, any two currencies of the European Snake can fluctuate by up to 4.5 percent vis-a-vis one another under current Snake rules. This point is discussed at greater length in "The European System of Narrower Exchange Rate Margins," *Monthly Report of the Deutsche Bundesbank* (January 1976), pp. 22-29.

<sup>11</sup>The Smithsonian agreement did not specify the appropriate time interval over which the 4.5 percent constraint was to

apply. It merely stated that the constraint would be binding until a "fundamental disequilibrium" arose. Therefore, in comparing recent exchange rate movements over *specific* time intervals (days, months, and quarters) with the 4.5 percent Smithsonian band, the 4.5 percent figure must be taken merely as a *guideline* to what may have been considered acceptable variation over these intervals. One should also keep in mind that the considerations which led to the Smithsonian agreement were formed against a backdrop of inflation that was relatively mild in terms of both levels and inter-country differences compared to the experience which has followed this agreement. Hence, considerably greater fluctuations might have been considered acceptable in these latter years. Thus, given the economic environment of the past few years, the 4.5 percent constraint may represent an unduly restrictive standard of comparison.

percent during the period of the generalized float. In evaluating this last finding, one should keep in mind that the currencies of these countries (with the exception of Italy) were joined together in a currency block for much of the generalized float period. As such, if the major block currency (the German mark) were to fluctuate relative to the dollar by a given percent over a given interval for any reason, all of the other block currencies would automatically fluctuate in a similar pattern.<sup>12</sup>

### *Causes of the Observed Fluctuations in Exchange Rates*

Much of the discussion about the relative desirability of fixed versus floating exchange rates relates to questions about the stability of the foreign exchange markets. This issue is tied to the question of whether or not speculation in these markets is destabilizing. With destabilizing speculation, exchange rate expectations based on fundamental factors are said to be weakly held and, hence, traders are unwilling to take large positions on the basis of these expectations. The resulting exchange rate path is then dominated by price runs and bandwagon effects and is, therefore, unnecessarily erratic.

A set of tests were performed to determine how prevalent such runs and bandwagon effects have been in foreign exchange markets since June 1970. These tests examine whether the number of runs observed in foreign exchange markets can be distinguished from the number that would be generated by a completely random process. Such so-called "runs tests" are useful in determining whether the behavior of exchange rates has been consistent with the hypothesis that speculation in these markets is destabilizing — a prevalence of sustained runs (that is, bandwagons) up or down.<sup>13</sup>

Runs tests for randomness were performed for each of the exchange rate series discussed in the pre-

<sup>12</sup>While this observation says nothing about the cause of the comparatively large fluctuations experienced by the block currencies as a group, it does call attention to the possibility that the source of fluctuations of any one of these currencies may lie more in the fact that the currency was a member of the block, rather than in any other factor.

<sup>13</sup>In this test a run is defined as a sequence of changes of the same sign that is preceded and followed by a sequence of changes of the other sign. If speculation is stabilizing, the runs that do appear are due to *changes* in fundamental factors. Since one would expect that *changes* in these fundamental factors occur on a random basis, expectations are that they would cause neither more nor less runs than would any random process. For a discussion of the runs test utilized in this article, see Dick A. Leabo, *Basic Statistics*, 4th ed. (Homewood, Illinois: Richard D. Irwin, Inc., 1972), pp. 545-47.

Table III

		Runs Test for Randomness of Exchange Rate Fluctuations		
		TIME PERIODS		
		I	II	III
<b>Belgium</b>				
Daily		-0.010	0.029	-0.035
Monthly		-0.058	-0.070	-0.042
Quarterly		-0.114	0.392	-0.212
<b>Canada</b>				
Daily		-0.085	-0.060	-0.103
Monthly		-0.282	-0.191	-0.362
Quarterly		-0.381	-0.163	-0.603
<b>France</b>				
Daily		-0.004	0.012	-0.018
Monthly		-0.210	-0.151	-0.258
Quarterly		-0.233	0.392	-0.603
<b>Germany</b>				
Daily		-0.027	-0.001	-0.044
Monthly		-0.197	-0.121	-0.242
Quarterly		-0.141	-0.131	-0.080
<b>Italy</b>				
Daily		-0.019	0.071	-0.060
Monthly		-0.128	0.164	-0.304
Quarterly		-0.218	0.174	0.095
<b>Japan</b>				
Daily		0.0	0.088	-0.031
Monthly		-0.339	-0.129	-0.336
Quarterly		-0.353	-0.696	-0.080
<b>Netherlands</b>				
Daily		-0.047	-0.052	-0.039
Monthly		-0.010	0.050	-0.042
Quarterly		-0.459	-0.654	-0.212
<b>Switzerland</b>				
Daily		-0.031	-0.049	-0.020
Monthly		-0.307	-0.222	-0.374
Quarterly		0.012	0.131	-0.028
<b>U.K.</b>				
Daily		-0.029	0.057	-0.098
Monthly		-0.395	-0.302	-0.430
Quarterly		-0.355	-0.554	0.097

Daily I = June 1, 1970 — June 30, 1976  
 II = June 1, 1970 — February 28, 1973  
 III = March 2, 1973 — June 30, 1976

Monthly I = June 1970 — June 1976  
 II = June 1970 — February 1973  
 III = March 1973 — June 1976

Quarterly I = II/1970 - II/1976  
 II = II/1970 - I/1973  
 III = II/1973 - II/1976

ceding sections of this article. The results of these tests are presented in Table III. A positive value for the test statistic indicates that the number of runs

in the sample exceeds the expected number for a random ordering. A negative value for the test statistic indicates fewer than the expected number of runs. The hypothesis of nonrandom ordering is rejected with 95 percent confidence only if the value of the test statistic lies within a range of  $\pm 1.96$ . The data presented in Table III indicate that the hypothesis that exchange rate changes were generated by a nonrandom process should be rejected on the basis of this test and these data. As such, these results permit conditional rejection of the view that observed exchange rate fluctuations have been the result of destabilizing speculation.

### *What are the Relevant Fundamental Factors?*

The data presented in the preceding section cast doubt on the view that exchange rate changes have been the result of destabilizing speculation. However, the alternative hypothesis, that exchange rates change primarily in response to changes in fundamental factors, has not been explicitly developed or considered.

Exchange rate theory indicates that the predominant factor determining exchange rate changes in the long run is the degree of inflationary pressure in one country relative to inflationary pressure in another country.<sup>14</sup> This theory can be well illustrated by a simple two-country example. Suppose there are only two countries in the world, country A and country B. A high degree of inflationary pressure in country A relative to that existing in country B implies an increase in country A's demand for all products, including those produced in country B. This increased demand for country B's products results in an increase in the demand for country B's currency in country A and causes the price of currency B to rise (in terms of the currency of country A). In other words, currency A will depreciate and currency B will appreciate.<sup>15</sup> In addition, if the rate of growth

of a country's money stock plays a dominant role in the determination of inflationary pressures, a strong relationship will be expected to exist between exchange rate changes and relative rates of monetary growth.<sup>16</sup>

The longer the time horizon, the more pronounced these relationships will be. Inflationary pressures become established only in the long run and the full impact of differing inflationary pressures on exchange rates could be resisted by governments in the short and intermediate runs. Under a system of freely floating or loosely managed exchange rates, necessary adjustments to changes in such fundamental factors are permitted to occur gradually. However, when exchange rates are narrowly fixed or tightly managed (as within the European Snake, for example) exchange market pressures are not relieved in a slow and orderly fashion. However, once market participants sense the presence of pent-up market forces which favor realignment, taking into account changes in fundamental factors, exchange market pressures surge and result in "currency crises" and sudden large jolts in exchange rates. Thus, while the relationship between exchange rates and relative inflationary pressures (as measured by changes in price indices) may not be strong in the short run, the longer the time frame, the stronger this relationship becomes.

In order to perform a test of the relative inflationary pressure hypothesis of exchange rate determination, the following series were constructed. The simple percentage change in the value of the U.S. dollar vis-a-vis each of the other nine currencies reviewed was calculated over the same three time periods analyzed in the preceding tests. The same computations were then performed for the simple percentage changes in two proxies for inflationary pressure (the consumer price index, CPI, and the wholesale price index, WPI), and for the money stock in each of the respective countries relative to the simple percentage

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supplied products will result in an increase in the price of those products. An increase in the demand for products produced in foreign countries will result in a rise in the price of the foreign exchange needed to purchase those products (depreciation of the domestic currency). It is reasonable to expect that the increase in the price of foreign exchange (which immediately increases the domestic price of foreign produced products) will occur faster than the increase in the prices of *all* of the other products covered by some overall price index. As such, it is entirely possible that inflationary pressures will be reflected in exchange rates before they are reflected in changes in overall price indices. For this reason, exchange rate changes may precede the relative movement in price indices in the short run, but this does not indicate that exchange rate changes have *caused* the movement in price indices.

<sup>16</sup>See Donald S. Kemp, "A Monetary View of the Balance of Payments," this *Review* (April 1975), pp. 20-21.

<sup>14</sup>The future can be divided into three different time frames — the long run, the intermediate run, and the short run — during which different factors are the dominant influence on exchange rate movements. Just where one of these time frames begins and ends cannot be precisely specified. This analysis concentrates on the long run only, which is defined here as any period extending for more than a quarter.

<sup>15</sup>Inflationary pressures are empirically approximated by observed changes in some very broad and imperfect index of *all* prices. These indices attempt to capture increases in the prices of foreign as well as domestically supplied products. However, the majority of the items included in these indices are domestically supplied.

Any increase in inflationary pressures will be reflected in an increase in the demand for foreign as well as domestically supplied products. The increased demand for domestically

changes in their U.S. counterparts. In other words, for each time period the simple percentage change in the CPI, WPI, and money stock for the United States was subtracted from the simple percentage change in the foreign counterparts of these measures.

A correlation test was then performed to determine the degree of relationship between the simple percentage change in exchange rate series and each of the other series described above.<sup>17</sup> If it is true that exchange rate movements reflect relative inflationary pressures and relative rates of money growth among countries, then the exchange rate series would be negatively correlated with each of the other three series. That is, those countries whose currencies appreciated the most relative to the U.S. dollar should be those countries whose inflation and money growth rates were smallest relative to the inflation and money growth rates in the United States.

The results, reported in Table IV, indicate that for all time periods there exists a statistically significant negative correlation between the WPI series and the exchange rate series. In addition, with the exception of the June 1970 through February 1973 period, the correlation between both the CPI and the money stock series and the exchange rate series is also negative and statistically significant. These results are noteworthy in two respects. First, the results which cover the entire time period since June 1970 indicate that there does in fact exist a statistically significant negative correlation between the exchange rate series and each of the other series. Second, there is a striking dissimilarity between the results for the pre-generalized float period and those for the generalized float period. This indicates that when the exchange rates had the greatest amount of freedom to respond to changes in fundamental factors, their observed movements paralleled relative inflation and money growth rates most closely. The results reported in Table IV thus lend support to the hypothesis that movements in exchange rates, particularly in the long run, are determined by relative inflationary pressures and relative rates of money growth.<sup>18</sup> In addition

<sup>17</sup>The particular measure of correlation utilized here is the Pearsonian Correlation Coefficient.

<sup>18</sup>The same test which led to the results presented in Table IV was conducted using data for all OECD member countries for which data are currently available. This same test was also performed using data for all of the 46 IMF member countries which account for about 90 percent of total U.S. trade and for which data are currently available. The results of both tests were virtually identical in their implications, if not in their exact numerical value, with those presented in Table IV. Thus, the conclusions drawn from Table IV do not appear to be sensitive to the sample of countries chosen for analysis.

Table IV

## CORRELATION TEST

Percent Changes in Exchange Rates Correlated with:	Time Period	Correlation Coefficient	Number of Observations <sup>1</sup>
Relative Percent Changes in CPI <sup>2</sup>	June 1970- March 1976	-0.789 <sup>3</sup>	9
	June 1970- Feb. 1973	0.002	9
Relative Percent Changes in WPI <sup>2</sup>	March 1973- March 1976	-0.922 <sup>3</sup>	9
	June 1970- March 1976	-0.945 <sup>3</sup>	84
Relative Percent Changes in Money Supply <sup>2</sup>	June 1970- Feb. 1973	-0.858 <sup>3</sup>	9
	March 1973- March 1976	-0.946 <sup>3</sup>	8
Relative Percent Changes in Money Supply <sup>2</sup>	June 1970- Jan. 1976	-0.667 <sup>5</sup>	76
	June 1970- Feb. 1973	0.199	8
Relative Percent Changes in Money Supply <sup>2</sup>	March 1973- Jan. 1976	-0.829 <sup>3</sup>	8

<sup>1</sup>The countries covered in this test are Belgium, Canada, France, Germany, Italy, the Netherlands, Japan, Switzerland, and the United Kingdom.

<sup>2</sup>The derivation of these series is explained in detail in the text.

<sup>3</sup>Significantly different from zero at the 99 percent level.

<sup>4</sup>The Netherlands was excluded from this test, as well as from the test covering March 1973-March 1976, because monthly WPI data are not currently available beyond December 1975.

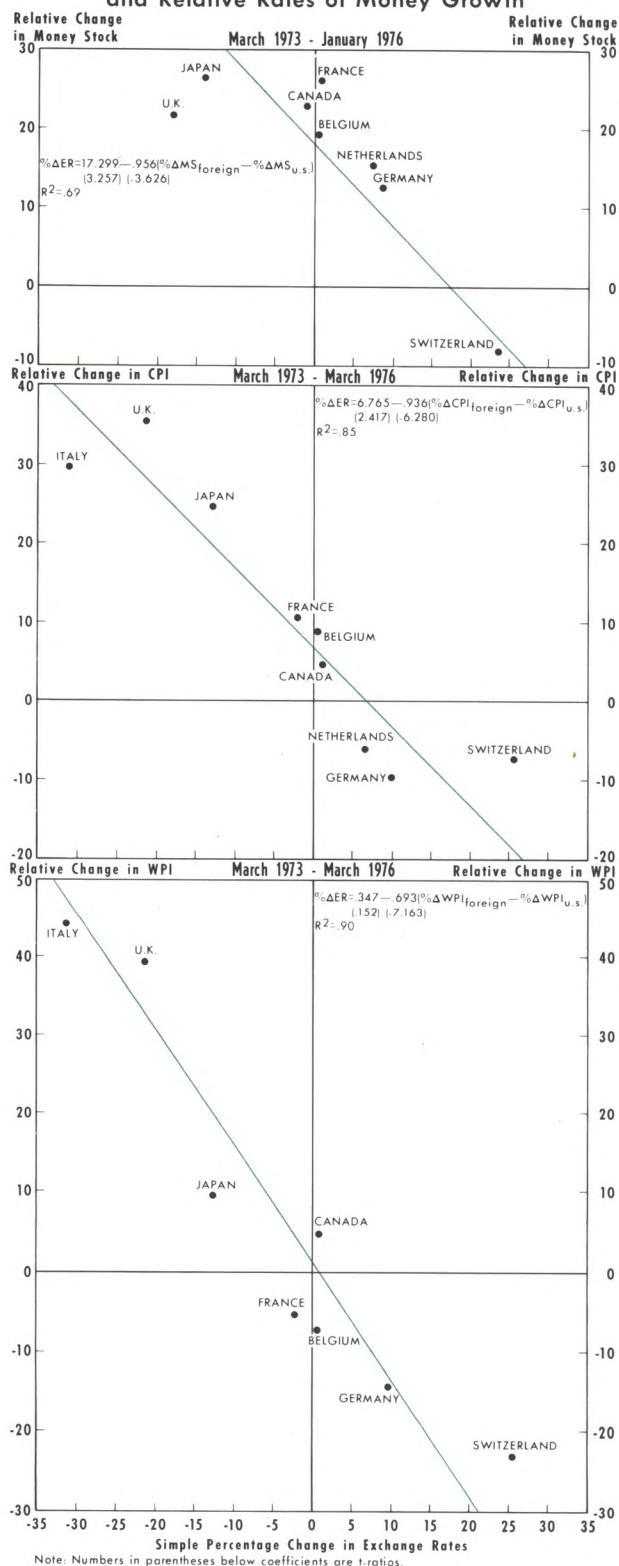
<sup>5</sup>Significantly different from zero at the 90 percent level.

<sup>6</sup>The United Kingdom was excluded from this test, as well as from the test covering June 1970-February 1973, because monthly money supply figures are not available for the United Kingdom until October 1971. Italy was also excluded from this test, as well as from the test covering March 1973-January 1976, because monthly money supply figures for Italy are not available beyond September 1975.

to these results, graphic illustrations of the relationships between exchange rate changes and the relative inflation and money growth series during the generalized float are presented in Chart I.

The observed negative correlation between relative rates of inflation and exchange rate changes says nothing about the direction of causality which underlies this relationship. Some analysts claim, for example, that changes in exchange rates "cause" changes in relative rates of inflation. However, evidence in favor of the alternative argument, that exchange rate changes were "caused" by the differences in inflation rates, is given by the last set of results in Table IV. One body of economic thought holds that relative rates of monetary expansion are the predominant factor in explaining relative rates of inflation in the long run. Applied to the argument advanced in this article, this view implies a strong negative correlation between exchange rate movements and relative rates of money growth, as shown in Table IV. On the other hand, the argument that changes in ex-

Chart I  
 Relationship Between Exchange Rate Changes,  
 Relative Rates of Inflation,  
 and Relative Rates of Money Growth



change rates “cause” inflation offers no explanation of these results.<sup>19</sup>

### Conclusion

The thrust of this article has been an empirical review of the recent experience with generally floating exchange rates between the U.S. dollar and the currencies of the United States’ major trading partners. The evidence presented herein casts doubt on the view that exchange rate changes are the result of destabilizing speculation, even in the short run. It is also demonstrated that in the long run exchange rates have changed in a pattern consistent with changes in fundamental economic factors.

An implication of these findings is that the prospects for a return to a viable fixed exchange rate regime are remote as long as there remains as wide a spectrum of economic policies among countries as has been the case for the past few years. The unacceptability of such a regime has been amply demonstrated recently by the futile efforts to hold together the European Currency Snake and the virtual abandonment by the Common Market of any plans for a closer Economic and Monetary Union. It is no coincidence that all but one *large* country departed from the Snake and that the dream of an economically united Europe vanished simultaneously. The reason is that the Common Market countries have recognized that no country that believes it has an option will be willing to subjugate its own economic policies to the monetary discipline practiced in another country (in the current situation the other country is West Germany). These experiences amply demonstrate that the time has not yet arrived for the kind of economic policy coordination that a fixed exchange rate system requires. While such coordination may or may not be a laudable goal to strive for, the world should accept the facts as they currently are and admit that, as of now, such an arrangement is nowhere in sight.

<sup>19</sup>For some samples of other recent studies which arrive at the same conclusion regarding the relative inflation and money growth rate hypothesis of exchange rate determination, see David Kern, “Inflation Implications in Foreign Exchange Rate Forecasting,” *Euromoney* (April 1976), pp. 62-69; and D. King, “The Performance of Exchange Rates in the Recent Period of Floating: Exchange Rates and Relative Rates of Inflation,” unpublished memorandum (New York: Foreign Research Division, Federal Reserve Bank of New York, March 15, 1976). King’s work also provides some evidence favoring the inflation to depreciation direction of causality. For an analysis of an earlier period of floating rates, see John S. Hodgson, “An Analysis of Floating Exchange Rates: The Dollar—Sterling Rate, 1919-1925,” *The Southern Economic Journal* (October 1972), pp. 249-57.

# Housing: A Cyclical Industry on the Upswing

NEIL A. STEVENS

**N**EW housing construction has been on the upswing since early 1975, following a severe downturn in 1973 and 1974. In many respects the current housing recovery is similar to other postwar recoveries, although apartment construction has not rebounded to the extent observed over similar periods in the past. Some perspective as to the nature of the current housing recovery can be gained by comparing its cyclical characteristics with those of previous recovery periods and by surveying the impact of several relevant economic variables on recent housing industry patterns.

## THE CURRENT HOUSING RECOVERY IN PERSPECTIVE

Historically, the housing industry has been characterized by recurring upswings and downswings which generally have been associated with fluctuations in overall economic activity. A sizable fluctuation in new home construction has been associated with each of the officially defined general business cycles in the past thirty years (see Chart I).<sup>1</sup> In addition, the housing industry underwent an additional downturn in 1966, a period sometimes identified as a "credit crunch" or mini-recession for the general economy.

### Timing

Housing starts, a measure of new home construction activity, have generally led aggregate economic activity in both the downswing and upswing phases of the business cycle.<sup>2</sup> In the recessions experienced since 1945, housing starts turned down from three to thirteen quarters before the economy in general, and turned up simultaneously with or as much as three quarters before overall economic activity. With regard to the current recession/recovery period, housing starts peaked in the fourth quarter of 1972, some four

quarters before the peak in the general economy. The trough in housing starts was reached in the first quarter of 1975, the same as the apparent bottoming-out point for the economy.<sup>3</sup>

### Strength

Although somewhat more rapid than many analysts had anticipated earlier, the rate of overall economic recovery has been about average when compared with other recoveries.<sup>4</sup> The current housing recovery, however, has been regarded by some as average and by others as below average, depending upon the particular statistical comparison which is made.

Measured in terms of the percentage increase in the number of housing units started, the housing recovery through the second quarter of this year (a period of five quarters) has been about average when compared with similar periods in other postwar housing recoveries.<sup>5</sup> The 46 percent increase in housing starts in the past five quarters is essentially the same as the 47 percent average increase recorded in the first five quarters of other postwar housing upturns. On an individual basis, housing recoveries have ranged from a 15 percent increase in the first five quarters following the housing trough in late 1960 to a 72 percent increase following the trough in early 1949 (see Chart II and Table I).

Despite the appearance of a fairly typical upturn in percentage terms, the level of housing starts in the second quarter of this year was below the average of previous recoveries at the five-quarter mark. At a seasonally adjusted annual rate of 1.43 million units in the second quarter of 1976, the housing recovery to date is below the average level of 1.71 million starts for the same number of quarters in other postwar recoveries. In addition, the second quarter level of housing starts is 41 percent below the previous peak in late 1972 (see Table I). While such comparisons give

<sup>1</sup>The definitions of aggregate economic turning points are those determined by the National Bureau of Economic Research (NBER).

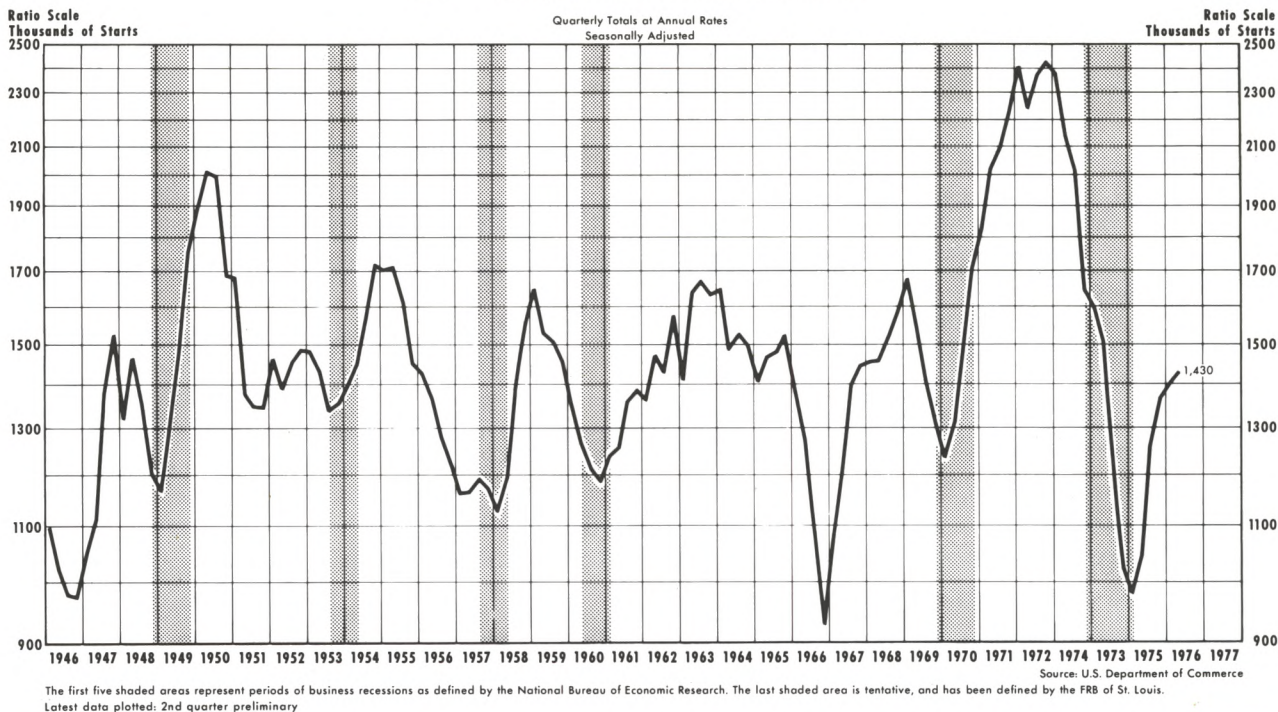
<sup>2</sup>Housing starts, which are recorded at the beginning of excavation of the foundation of a building, are a measure of additions to the housing stock, though not a perfect measure. Housing starts, for example, do not include mobile homes which have become an increasingly important part of the housing stock. Also, housing starts are not standardized units with regard to size and quality. And, of course, a housing unit started does not necessarily yield a housing unit completed.

<sup>3</sup>The NBER has not, as yet, selected the trough point for the aggregate economy in the last recession. The first quarter of 1975 is used here as a tentative date.

<sup>4</sup>For a discussion of the current economic recovery, see Roger W. Spencer, "Inflation and the Economic Recovery," this *Review* (June 1976), pp. 2-10.

<sup>5</sup>The duration of housing recoveries has varied widely, ranging from four quarters in two recoveries to eleven quarters in two other recoveries.

Chart I  
New Privately Owned Housing Units Started

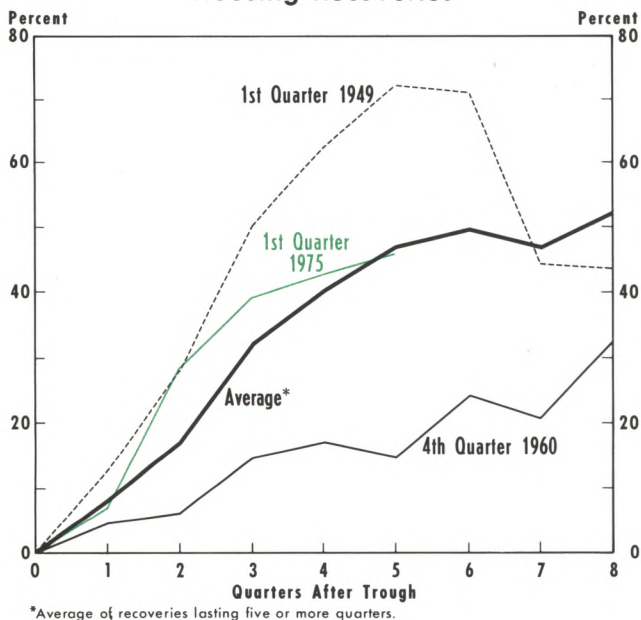


the impression that the current housing upturn is rather weak, it should be remembered that the peak in housing starts in late 1972 represented the highest level attained in the postwar period and that the trough in late 1974 represented the second lowest level.

*Pattern of Single- and Multi-Family Housing*

The current housing upturn has been dominated by construction of single-family dwellings, with the increase in single-family housing starts being over three times the increase in multi-family housing starts in the first five quarters of the present recovery.<sup>6</sup> The gains in the two markets were considerably more equal in the three previous housing recoveries.

Chart II  
Housing Recoveries



The recent paucity of multi-unit construction can be seen more clearly when viewed from a different perspective (Chart IV). Multi-family housing starts had trended upward relative to single-family starts over the 1959-73 period; then the ratio of multi- to single-family construction plummeted from 83 percent in the third quarter of 1973 to 32 percent in the first quarter of 1975. In the current expansion, this ratio has, on balance, remained at this low level, registering only 31 percent in the second quarter. In the three previous housing recoveries this ratio had generally risen.

*Trend Over 1959-73* – These movements in relative quantities of single- and multi-family housing reflect

<sup>6</sup>Condominiums, or owner-occupied apartments, have become an important share of multi-family housing starts, especially in the 1970s. In principle at least, such dwellings allowed owners to benefit from tax advantages and possible increased property values while retaining the amenities of apartment living.



Table I

POSTWAR RECOVERIES IN HOUSING STARTS

Trough Quarter to Peak Quarter <sup>1</sup>	Duration (Quarters)	Percent Increase from Trough to Succeeding Peak	Annual Rate of Increase from Trough to Succeeding Peak	Percent Increase in First Five Quarters	Percent of Total Increase Attributed to First Five Quarters	Five Quarters Following Trough Quarter as a Percent of Previous Peak
IV/1946 - IV/1947	4	+56.6%	+56.6%	N.A.	N.A.	N.A.
I/1949 - II/1950	5	+72.3	+54.6	+72.3%	100%	+32.0%
III/1953 - IV/1954	5	+28.2	+22.0	+28.2	100	-14.8
I/1958 - I/1959	4	+46.1	+46.1	N.A.	N.A.	N.A.
IV/1960 - III/1963	11	+41.1	+13.3	+14.9	36	-17.4
IV/1966 - I/1969	9	+80.2	+29.9	+56.3	70	-13.0
I/1970 - IV/1972	11	+96.1	+27.8	+63.4	66	+20.4
Average		+60.1	+35.8	+47.0 <sup>2</sup>	74 <sup>2</sup>	-6.0 <sup>2</sup>
I/1975 - II/1976	5	3	3	+45.8	N.A.	-41.0

Source: U.S. Department of Commerce, Bureau of Census.

<sup>1</sup>Peaks and troughs are those identified with housing starts, not the general economy.

<sup>2</sup>Average of recoveries which last five or more quarters.

<sup>3</sup>Peak as yet undefined.

N.A. — not applicable.

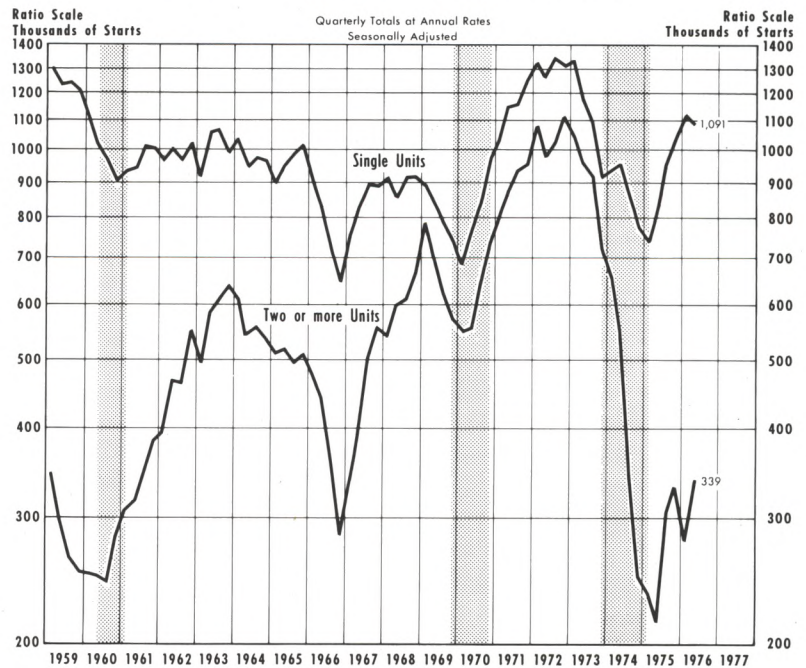
changes in both demand and supply factors. In the 1959 to 1973 period, demographic factors were working in favor of increasing the demand for apartment housing relative to single family homes. Reflecting the post World War II baby boom, the number of people in the 15-29 age group rose from 35 million to about 58 million from 1960 to 1975.<sup>7</sup> As a result, a large number of new households were formed among ages favoring apartment living. Rising income and changing social values also encouraged the formation of a greater number of single households. Apartment construction around colleges and universities, for example, proliferated in the latter 1960s and early 1970s, and "singles" apartments became commonplace.

While such demand factors help explain the relative increase in multi-family starts during the 1959-73 period, a decline in the price of multi-family housing relative to single-family housing was also observed during this period. The rent component of the consumer price index, for example, rose 37.5 percent from 1959 to 1973, compared with a 74 percent rise in homeownership costs. This change

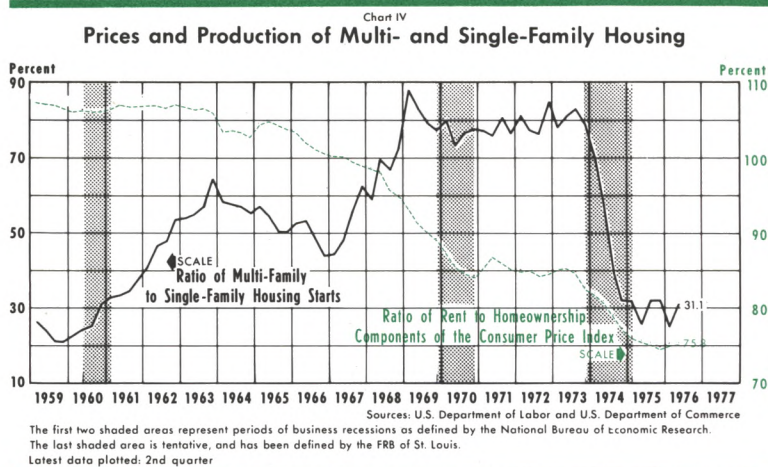
<sup>7</sup>See George H. Brown, "Demographic Pressures for Change," University of Michigan, Survey Research Center, *Economic Outlook USA* (Spring 1976), pp. 30-31.

reflects, in part, different supply factors in the two markets. Little difference in cost of production can be attributed to such factors as labor or materials or from differences in production technique. How-

Chart III  
New Privately Owned Housing Units Started



Source: U.S. Department of Commerce. The first two shaded areas represent periods of business recessions as defined by the National Bureau of Economic Research. The last shaded area is tentative, and has been defined by the FRB of St. Louis. Latest data plotted: 2nd quarter preliminary



ever, the amount of land used per unit varies substantially between single- and multi-family construction. As the demand for housing in general continued to rise, the price of attractive building sites rose sharply, tending to shift relative costs in favor of apartments, as they are less land intensive.

**Recent Cyclical Movements** — An interesting problem with implications for the future of the current housing upturn is the further decline in rents relative to homeownership costs concurrent with the sharp decline in multi-family construction (both absolutely and relative to single-family housing) in the 1973-75 period (see Chart IV). This phenomenon suggests an “overbuilding” of multi-family housing in the boom period in 1971 and 1972. Such overbuilding was particularly noticeable in condominium projects, but general apartment vacancy rates did increase somewhat during the boom period, from 5.2 percent in late 1970 to 5.7 percent in early 1973. But why did apartment vacancy rates remain relatively high in 1975, despite the tremendous decline in the construction of multi-family units, the attractiveness of renting versus homeownership costs, and generally improving economic conditions in the second half of 1975?

The evidence seems to imply that the excess supply situation in the multi-unit housing market was exacerbated by an unexpected decline in the demand for apartments, both absolutely and relative to single-family type housing during the recession period. The young people who were able to move out on their own in the late 1960s and early 1970s as incomes rose were probably more severely affected by the economic decline in 1974 and early 1975 than the public in general. Real incomes declined for several quarters and unemployment among the young was much higher than for those who typically comprise the home-buying public. Some analysts have sug-

gested that one of the sources of the weakness in demand for apartments is related to these younger apartment dwellers simply returning home or “doubling up.”<sup>8</sup>

More recently, available evidence suggests that the demand for apartments has begun to increase. Vacancy rates have declined somewhat, and rents have risen at a 5.5 percent annual rate in the past six months, somewhat faster than the 3.1 percent rate of increase for homeownership costs. As the recovery continues, with rising real incomes and falling unemployment rates, the desire of younger persons for separate living quarters will likely be reasserted. Such events

will, in turn, encourage the rent adjustment necessary if the construction of multi-family housing is to make substantial cyclical gains.

Demographic trends, however, argue against multi-family units regaining the prominence of the late 1960s and early 1970s. Based on Bureau of the Census projections, the 30-44 age group, which favors single-family homes, will rise sharply over the next fifteen years. Meanwhile, the number of people in the 15-29 age bracket is expected to decline slightly over the next fifteen years. Considering this trend factor alone, the demand for single-family homes will benefit relative to apartment demand over the coming years. On the other hand, the likely continuance of the upward trend in land prices will tend to favor apartments relative to single-family homes.

## FACTORS INFLUENCING HOUSING CYCLES

### *Government Policy Influences*

Fluctuations in new housing expenditures are closely associated with fluctuations in the general economy, but the factors which underlie such general economic fluctuations are a source of considerable disagreement among economists. Evidence has been accumulated which points to changes in the growth rates of monetary aggregates as a consistent factor underlying business fluctuations.<sup>9</sup>

<sup>8</sup>See Alan R. Winger, “Whatever Happened to the Apartment Dwellers, . . .,” Federal Home Loan Bank of Cincinnati, *Quarterly Review* (Second Quarter 1976).

<sup>9</sup>See Milton Friedman and Anna Schwartz, *A Monetary History of the United States, 1867-1960*, Princeton University Press, 1963; Milton Friedman, “Money and Business Cycles,” *Review of Economics and Statistics*, pp. 32-64, Supplement, February 1963; Michael Keran, “Monetary and Fiscal Influence on Economic Activity—The Historical Evidence,” this *Review* (November 1969), pp. 5-24; Leonall C. Andersen

Most economists would agree that monetary forces have important effects on the short-run behavior of the housing industry. A study by Francisco Arcelus and Allan Meltzer, for example, found that interest rates and the rental price of housing were principal factors determining the demand for new housing starts, while the chief factors determining the supply of housing starts were interest rates and labor costs.<sup>10</sup> In that study, cyclical changes in interest rates of plus or minus 0.5 or 0.6 percent around a mean 5 percent market rate of interest were found to induce changes of 15 or 20 percent in the amount of new housing demanded.<sup>11</sup>

In view of this alleged link between interest rates and housing, aiming Government policies at keeping interest rates "low" and stable in order to encourage home building seems appropriate to many individuals. The pursuit of such policies, without regard to the growth of the monetary aggregates, however, probably will lead to periodic economic recessions and inflations<sup>12</sup>—both of which have damaging effects on housing.

Homebuilding, like the general economy, benefits temporarily from stimulative monetary policies, even if resources are essentially fully employed. But as these burgeoning demands for resources compete for the limited quantities available, upward pressures on prices result. In the competition, the demand for credit rises, partially reflecting inflationary expectations, and interest rates begin to increase, not fall as was originally intended. Indeed, it is during these so-called boom periods that the downward phase of the housing cycle typically has begun as the rising interest rates encourage consumers to postpone housing expenditures.

Public frustration with an unexpectedly accelerating advance in the price level leads eventually to policies designed to lessen the inflationary pressures. Monetary growth is reduced and, temporarily at least, interest rates rise even higher. The cutback in monetary growth leads to a reduction in aggregate spending, and temporary declines in income, employment, and production.

and Jerry L. Jordan, "Monetary and Fiscal Actions: A Test of Their Relative Importance in Economic Stabilization," this *Review* (November 1968), pp. 11-24.

<sup>10</sup>Francisco Arcelus and Allan H. Meltzer, "The Markets for Housing and Housing Services," *Journal of Money, Credit and Banking* (February 1973), pp. 78-99.

<sup>11</sup>*Ibid.*, p. 86.

<sup>12</sup>For a recent discussion of some of these arguments, see William Poole, "Interest Rate Stability as a Monetary Policy Goal," Federal Reserve Bank of Boston, *New England Economic Review* (May/June 1976), pp. 30-37.

Housing, as was pointed out earlier, usually begins its recovery well before the upturn in the general economy. As the recession proceeds, general demand for credit recedes and interest rates begin to decline. As a result, during the latter stages of a recession and early months of the business recovery, housing historically has made its largest gains.

This process is exaggerated by several artificial restrictions on market behavior. For example, Government regulations on rates that thrift institutions can pay on time and savings deposits or rates these institutions can charge on loans have an important effect on housing activity. Housing is largely financed through credit extended by thrift institutions; therefore, when interest rate ceilings become effective (that is, in periods of "high" interest rates) and funds are redirected into unregulated market instruments, the amount of credit available to finance housing expenditures is restricted. Similar effects result from the usury laws of various states. Credit naturally flows out of the regulated markets when market interest rates rise above the usury ceiling.

Although the cause and effect relationship is probably overemphasized, a high degree of correlation can be found among the amount of deposits at thrift institutions, changes in mortgages outstanding, and the number of new homes built. Even in the absence of interest rate restrictions, the rates offered by thrift institutions tend to adjust upward more slowly than market interest rates during periods of rising interest rates. Thus, the public tends to reduce its assets held at thrift institutions and to increase its assets held in other market instruments. Also, as interest rates rise, consumers tend to postpone housing expenditures and reduce their demands for mortgage credit. Thus, the positive relationship between changes in nonbank thrift deposits and changes in housing expenditures is observed without necessarily implying that one causes the other.<sup>13</sup>

### *External Influences*

Recently, nonmonetary events also have led to fluctuations in economic activity by suddenly and unexpectedly affecting such economic variables as income, wealth, and relative prices. For instance, the sudden increase in oil prices in late 1973 and 1974 resulted in U.S. citizens having to export more goods and services for the same amount of oil as was previously received. Such a loss of wealth by U.S. citizens

<sup>13</sup>See Arcelus and Meltzer for a further articulation of this view.

and the accompanying one-time increase in the price level caused consumers and businesses to alter their spending decisions and thus contributed to the initial stages of the recent recession. Naturally, housing expenditures were also adversely affected by the losses in income and wealth.

### **SUMMARY AND OUTLOOK**

The housing sector is currently undergoing a recovery from the most severe decline since World War II. The current housing upswing did not lead the general economic upturn as in other recoveries, but, on balance, the percentage increase in housing starts to date is in line with the average of other postwar recoveries. The upturn has been primarily in the single-family type market, while the market for multi-family units, although posting some gains, has been sluggish.

Historically, the housing industry makes most of its gains in the late stages of the business recession and early quarters of the general economic recovery. Based on these historical patterns, the largest gains in the housing sector may have already been achieved. Yet, housing starts have not reached the level usually attained at this stage of the business cycle, particularly multi-family housing starts. A strong upturn in this market appears to depend on a further increase in the demand for such housing, which will signal increases in rents and induce a change in the quantity of housing starts. Over the coming decade, however, demographic factors are expected to favor increases in the demand for single-family homes. Age groups tending to prefer single-family dwellings are projected to increase substantially in the coming years, while age groups tending to favor apartments are expected to remain essentially unchanged.