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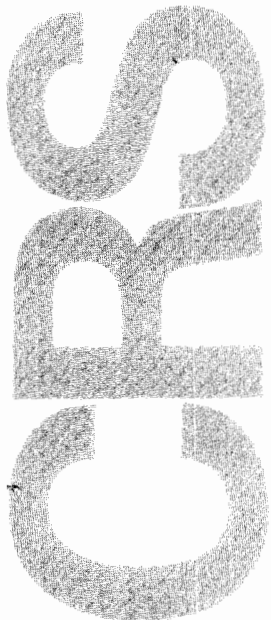
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HIGH INTEREST RATES: CAUSES, CONSEQUENCES, AND ISSUES

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ABSTRACT

This paper reviews the causes of the steep interest rate escalation since 1978 and the persistence of high rates during the recent recession and revival. Financial innovation, interest rate volatility, and inflationary expectations all play a role. However, the principal cause is the combination of expansionary fiscal policy with restrictive monetary policy.

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SUMMARY

High interest rates bias national expenditure away from investment and net exports, creating a danger of future shortages of capital stock and housing and weakening the industries that produce for export and compete with imports. They therefore represent a threat to basic industry and to the growth of productivity. They also add to the cost of government and to the debt-service problems of debtor countries.

The recent escalation of interest rates began with the rise in oil prices of 1979 combined with restrictive monetary policies on the part of the Federal Reserve. The second wave of escalation beginning in mid-1980 was again the product of rapid inflation relative to monetary growth. The persistence of high interest rates seems primarily attributable to the combination of expansionary fiscal policy with continued monetary restraint.

Interest rates are probably also higher today because of such financial innovations as NOW accounts and Money Market Mutual Funds, since these innovations raise bank costs and also increase the demand for money by increasing its yield. Long-term rates are also higher because interest rates have become more variable, causing investors to require greater risk premiums. Both of these latter factors might be neutralized by a one-time increase in the money supply to accommodate the greater liquidity preference caused by these changes.

Inflationary expectations tend to increase nominal interest rates but tend to lower real interest rates. Since the real cost of borrowing declines, a rise in the expected rate of inflation is expansionary. Inflationary expectations cannot explain high interest rates on short-term instruments.

* The author wishes to thank William A. Cox, John B. Henderson, Roger S. White, and G. Thomas Woodward for comments and criticisms of earlier drafts. Joanne L. Orndorff and Sheree Wood provided secretarial assistance.

Inflationary expectations are mainly of assistance in explaining the wider spread between nominal long and short-term rates. Similarly, the expectation of higher interest rates due to the persistence of budget deficits also helps to explain a wider spread by causing borrowers to shift to long-term borrowing to lock in today's lower rates, while lenders shift to short-term lending to avert capital losses as interest rates climb.

The fact that interest rates frequently increase when it is announced that the money stock has grown faster than expected appears due to increases in the demand for money provoked by the expectation that rates will rise as the Federal Reserve curtails money growth to its target range. This phenomenon should not obscure the fact that increases in the money supply, if continued, put downward pressure on short-term interest rates, although associated fears of future inflation may raise long-term rates. It is difficult to pursue effective monetary policy as long as increases in the money stock above announced targets cause the demand for money to rise for purely portfolio reasons, while raising the target ranges for monetary growth runs serious risks of alarming inflation-wary investors.

Despite the concern over high interest rates, there is little or no evidence to suggest that a return to the pre-1979 policy of interest-rate stabilization would improve the economy's performance. The stability of interest rates is likely to be purchased at the cost of instability in interest-sensitive expenditure categories such as housing and business investment.

Several considerations suggest that interest rates may rise from their present levels. Sustained recovery would add upward pressure on interest rates as would further increases in the structural budget deficit, that is, the part of the deficit not traceable to recession. The likelihood that public debt in

the hands of the private sector will grow more rapidly than the money supply may add further upward pressure inasmuch as investors will attempt to maintain balanced portfolios by disposing of some government securities in exchange for cash balances. On the other hand, interest rates relative to inflation remain extremely high by historical standards, and the inflation premium in long-term rates could decline if inflation remains below the levels of the 1975-79 expansion period.

It is widely agreed that the most effective attack on the problem of high interest rates and their consequences would be a reversal of the monetary-fiscal policy mix. This implies a combination of expenditure reduction and tax increases on the fiscal side with a temporarily more stimulative monetary policy. Such a change in the policy mix could be made to achieve the same level of aggregate expenditure, but at lower interest rates, and it need not, therefore, be inflationary.

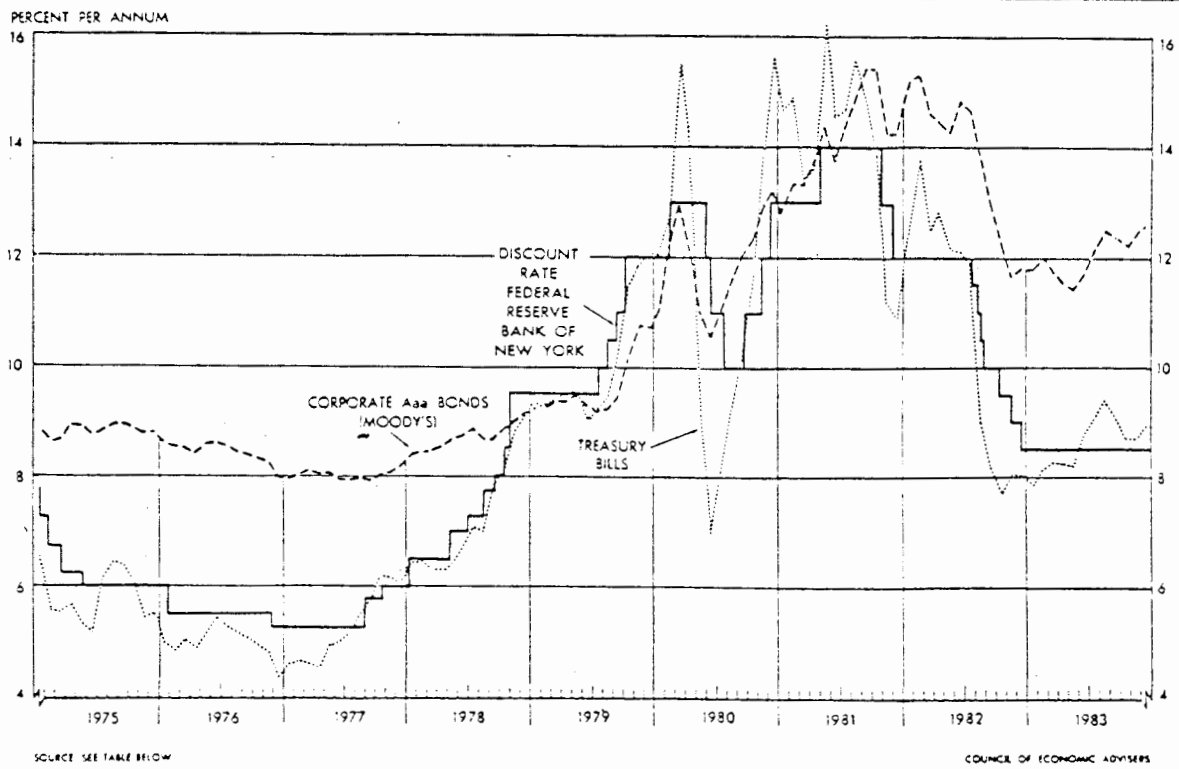
HIGH INTEREST RATES: CAUSES, CONSEQUENCES, AND ISSUES

Interest rates escalated sharply in the middle of 1979 and again in the last half of 1980. Although they have ebbed considerably in response to the declining credit demands caused by the recession of 1981-82 they remain substantially higher than at comparable stages of previous business cycles, and there is fear that they will climb again in the near future. This paper analyzes various reasons given for the escalation of interest rates and their persistence at high levels. There is, as well, discussion of the consequences of higher interest rates for the economy. A concluding section analyzes alternative proposals for dealing with the problem.

1. THE INTEREST RATE ESCALATION

The accompanying chart shows the path of selected interest rates over the period 1975 to 1983. As can be seen, the end of 1976 marked the low point for interest rates prior to the escalation that characterized subsequent years. Following that low point, they began an upward movement that, until the middle of 1979, would be regarded as normal for a period of economic recovery. However, the middle of 1979 to the spring of 1980 witnessed a remarkably sharp rise in all interest rates. This was followed by some easing in the summer of 1980, as the economy entered a brief decline, and by yet another dramatic escalation in the latter half of 1980 that continued until the latter part of 1981. There then came a decline which extended through late 1982. Since that time the path has been upward but at a gentle pace.

INTEREST RATES AND BOND YIELDS



[Percent per annum]

SOURCE: Council of Economic Advisers.

The two waves of escalation left interest rates significantly higher during the recent recession and revival than at comparable stages of previous business cycles. A comparison of cyclical troughs shows that rates on Aaa corporate bonds averaged 7.9 percent in the fourth quarter of 1970 and 8.7 percent in the first quarter of 1975. This is in sharp contrast to the 11.7 percent average recorded during the fourth quarter of 1982. Thus long-term rates have ratcheted upward by 3.8 percentage points over their 1970 level and 3.0 percentage points over 1975.

Short-term interest rates show a similar, though less pronounced, escalation. In the fourth quarter of 1982 the rate on 3-month Treasury Bills averaged 8.0 percent, exceeding the 5.4 and 5.9-percent averages of the previous two cyclical trough quarters by 2.6 and 2.1 percentage points respectively.

The spread between short and long-term interest rates has also widened significantly. In the earlier cyclical trough quarters the Aaa rate exceeded the bill rate by 2.5 and 2.8 percentage points respectively. In the 1982 trough quarter this spread was 3.7 percentage points, nearly one-third wider than in 1975.

Observed interest rates are usually referred to as nominal interest rates. When the loss due to inflation in the purchasing power of the loan repayment is deducted from the nominal rate, the remaining return is called the real rate of interest. A very rough indication of real rates can be obtained by subtracting the actual inflation rates from nominal interest rates. This shows that the spread between real interest rates in the 1982 trough and previous troughs is even wider than the spread between nominal rates. For example, the implicit price deflator for Gross National Product (GNP) grew at an annual rate of 6.3 percent in the fourth quarter of 1970 and 3.8 percent in the fourth quarter of 1982. Subtracting these inflation rates from the nominal Aaa rate gives real

rates of 1.6 and 7.9 percent respectively, implying an increase of 6.3 percentage points. Similarly, real short-term interest rates, defined in this manner, averaged -0.9 percent in the earlier period as opposed to 4.2 percent in 1982, implying a rise of 5.1 percentage points. Thus both nominal and real rates of interest are much higher than previously.

Finally, it is significant to note that these changes have been accompanied by greater volatility of interest rates. As explained later, this increased volatility is probably attributable to changes in Federal Reserve operating procedures that began in October 1979. A useful measure of the variability of interest rates is the standard deviation. For quarterly average interest rates on 3-month Treasury bills, the standard deviation was 1.78 percentage points of interest for the period extending from the first quarter of 1977 to the third quarter of 1979. But for the subsequent period, extending from the fourth quarter of 1979 through the fourth quarter of 1983, the standard deviation was 2.43 percentage points. The increase in this measure of volatility is therefore 36 percent.

In summary, there are three distinct facts the emergence and consequences of which require analysis. The first is that interest rates appear to have reached a plateau at higher levels than at previous, comparable stages of the business cycle. The second is that the spread between long and short-term interest rates has widened. The third is that fluctuations in short-term interest rates have become substantially more pronounced.

II. CONSEQUENCES OF HIGH INTEREST RATES FOR THE ECONOMY

High interest rates retard spending in interest-sensitive sectors of the economy. The principal victims are home construction, consumer durable goods, business fixed investment, exports, and import-competing sectors. As a consequence, the mix of final demands in the economy tends to be heavily consumption-oriented. In the longer run the result may be supply constraints that create bottlenecks and lead to a revival of inflation. Housing construction, for example, appears to have been running well below levels needed to meet requirements implied by demographic considerations. In August 1983 new private housing units started recovered to 1.9 million units annually, but then ebbed to 1.7 million in September and remained near that level through year's end, in contrast with the more than 2 million mark normally associated with a fully recovered homebuilding industry. These developments seem likely to aggravate a growing national housing shortage that could result in a sharp escalation of real estate values and rental costs, which in turn could contribute substantially to inflation.

Nonresidential fixed investment has been surprisingly strong against the backdrop of high long-term interest rates. During the recovery years 1971 and 1975 real nonresidential fixed investment averaged 10.0 and 9.7 percent of real GNP respectively. In the current recovery such investment averaged 10.8 percent of real GNP for the first three quarters of 1983. Possibly the depressing effect of high interest rates has been offset by the improved corporate cash flow and higher after-tax rates of return on new investment that stem from the business tax

provisions of the Economic Recovery Tax Act of 1981 as well as from the beneficial effects of reduced inflation. 1/

Nevertheless, many economists continue to be concerned about capital accumulation rates insufficient to provide for adequate growth in the economy's capital-labor ratio and therefore in productivity. 2/ As a consequence of the severe 1982 recession, even more potential new capital stock has been lost than in previous recessions. This means that labor has less capital with which to work than would otherwise have been the case. Barring sudden efforts by business to recoup past investment shortfalls, revival of the economy could lead to capacity bottlenecks at unemployment rates higher than those at which such constraints were met in the past. In that event there may be no alternative for the economy other than to accept higher unemployment or to suffer a revival of inflation.

Increases in government purchases of goods and services together with personal tax reductions raise the shares of government and private consumption in GNP. In an environment of economic slack this creates little danger of competition either for real resources or for funds, provided monetary policy is accommodative. However, at later stages of business expansion such competi-

1/ For an analysis that elaborates these points, see U.S. Library of Congress. Congressional Research Service. Effects of Tax Depreciation Changes and Federal Deficits on the Allocation of Capital and Output: A Simulation Study, (Report No. 83-126 E), by Jane G. Gravelle, July 1983.

2/ The connection between labor productivity and the capital labor ratio can be understood by noting that labor productivity (Q/L) may be partitioned as

$$Q/L = (Q/K) (K/L)$$

where Q, L, and K are aggregate output, labor, and capital stock, respectively. Q/K is capital productivity and K/L is the capital-labor ratio. Thus it can be seen that labor productivity may be raised either by increasing the productivity of capital or by raising the capital-labor ratio.

tion intensifies. Interest rates may then be expected to rise and the investment "crowd out" that is so widely feared may then occur.

Crowd out is a phenomenon that normally accompanies a business revival. Today's unusual danger is that with government claiming a larger share of GNP and with consumption remaining strong as the result of tax reduction, there will be less available for investment. Thus, although crowding out appears not to be a serious problem at this time, it may become a problem in the near future because of the increased government and consumption shares implied by current fiscal policies. Implicit in this scenario are sharply rising interest rates and a smaller than traditional share of investment in the GNP.

High interest rates are widely viewed as a threat to recovery. The argument may well be valid if it refers to the likelihood of supply bottlenecks stemming from underinvestment in housing and capital stock. In that scenario inflationary pressures begin at an earlier stage of revival, forcing the Federal Reserve into a restrictive monetary posture that brings expansion to a halt with unemployment rates at levels substantially higher than at previous cyclical peaks.

Sometimes the argument implies a strangling of aggregate demand that would not occur with lower budget deficits and the implied lower interest rates. In this form the argument would appear to lack foundation. Other things equal, a larger structural budget deficit adds more to aggregate expenditure than a lower structural deficit. 3/ If interest rates were brought down by a reduction in

3/ The structural, or implicit, budget deficit refers to the deficit in the budget that remains after the removal of the effects of the recession on the deficit. In the calculations of this paper a 5.1-percent unemployment rate is considered the "benchmark" against which the structural deficit is measured. A one-percentage-point increase in the unemployment rate costs the Treasury about \$18 billion in lost revenue annually. It also implies greater outlays, primarily on unemployment compensation, of about \$6 billion. Therefore, a one-percentage-point increase in the unemployment rate adds \$24

the deficit, aggregate expenditure would be reduced, and that reduction, rather than high interest rates, would slow the economy. Lower interest rates would encourage some expenditure components to rise, but this cannot offset the decline in spending implied by a tax increase. The reason is that a tax increase brings interest rates down because it reduces total spending and, therefore, the demand for money and credit relative to its supply. It is precisely because the tax increase has a restrictive effect that interest rates decline. If total spending were higher after the tax increase, the demand for money would be greater and interest rates would be higher.

While domestic crowding out receives the bulk of the attention, it is international crowding out that is now having the severest impact on the economy. A rise in interest rates has the effect of attracting foreign short-term capital. Under the flexible exchange rate system, the increase in the demand for dollar-denominated assets helps to hold down interest rates but it increases the international exchange value of the dollar relative to other currencies. This lowers the dollar cost of imports to Americans and raises the cost of U.S. exports to potential foreign buyers. The result

(continued) billion to the actual deficit. In the first three quarters of 1983 the actual deficit ran at an annual rate of \$179.3 billion. However, since the unemployment rate averaged 10.0 percent, the discrepancy of 4.9 percent between the actual and the benchmark rate implies that the recession-caused portion of the deficit came to \$117.8 billion. Subtracting this from the actual deficit yields a structural deficit of \$62.2 billion.

The structural deficit is the measure most commonly used by economists to assess whether the budget is becoming more expansionary or restrictive. The actual budget deficit cannot do this because it fluctuates in response to changes in the economy. It cannot therefore isolate the effects of fiscal policy. For example, the actual deficit is expected to decline in Fiscal Year 1984. However, this is not due to restrictive fiscal action and is caused, rather, by improvement in the economy. Fiscal policy in FY 1984 will actually be somewhat expansionary according to estimates which show the structural deficit to be widening. On this point see Congress of the United States. Congressional Budget Office. The Economic and Budget Outlook: An Update. A Report to The Senate and House Committees on the Budget. August 1983.

To put the point differently, the actual budget deficit reflects both the influence of the budget on the economy and the influence of the economy on the budget. By removing the latter, the structural deficit definitely implies that fiscal policy is moving in an expansionary direction.

is a reduction in export sales and an increase in the volume of imports. Both developments place a drag on domestic economic activity, especially in the basic manufacturing industries that produce for export and compete with imports. The rapidly declining trade balance slows GNP growth and distorts the balance of the economy's recovery, although this drag does not nullify the expansionary effects provided by deficit spending.

The sharp escalation of interest rates that occurred in mid-1980 coincided with the onset of a similarly sharp rise in the exchange value of the dollar. By August 1983 the value of the dollar had risen 48.6 percent over its 1981 value against a trade-weighted combination of ten major currencies, signifying an enormous deterioration in the competitive position of exports and a corresponding rise in the attractiveness of imports relative to domestically produced goods. Trade statistics reflect the impact of these relative price changes. In the fourth quarter of 1983 the value of exports in constant 1972 dollars had fallen to an annual rate of \$141.5 billion as compared with \$159.1 billion in 1980, a decline of 11 percent. Imports, meanwhile, increased 27.8 percent from \$108.8 billion in 1980 to an annual rate of \$139.0 billion in the fourth quarter of 1983. In combination, these developments produced a reduction in net exports of \$47.8 billion from \$50.3 billion to only \$2.5 billion. Net exports, which had contributed 3.4 percent to real GNP, now contribute virtually nothing. Crowding out clearly has been mainly international in character.

These trade developments represent a serious source of weakness in the economy and are to some extent responsible for the depth and severity of the recession. They appear to be heavily attributable to high interest rates and exchange rates although the lagging business recovery abroad also plays an important

role in the stagnation of exports. Since a principal impact of the trade decline is on the manufacturing sector, it is widely regarded as a threat to the industrial structure of the economy.

There is an additional reason for supposing that high interest rates cause exports to suffer. Recently several countries with heavy international indebtedness have had to impose austerity measures that include the curtailment of imports. The mounting international debt problems of these countries have been exacerbated by the escalation of interest rates since this has greatly increased the cost of debt service. Acquiring resources from private as well as official borrowers has become difficult and frequently comes at the price of so-called conditionalities that force countries to take steps to reduce imports either directly or indirectly through a slowing of economic growth.

While high interest rates in the United States may be said to have the effect of slowing both inflation and the growth of employment, they also have the effect of exporting jobs and inflation. A large reduction in U.S. net exports has, as its mirror image, an increase in the net exports of our trading partners. The stimulus lost by the U.S. economy is therefore transferred elsewhere. While the reduction in U.S. exports creates jobs abroad, it also adds to inflation abroad because of higher levels of aggregate demand and because the rise in the U.S. exchange rate has greatly increased the cost of imports from the U.S. The recession of 1981-82 was worldwide as industrial production slipped in 1982 in the European Economic Community (EEC) as well as in Japan and elsewhere. However, the decline in the European inflation rate was not nearly as pronounced as in the United States. For example, the rate of increase in consumer prices in the United States declined from 10.4 percent in 1981 to 6.1 percent in 1982. However, in the EEC the inflation rate dropped only to 9.6 percent in 1982 from a rate of 11.5 percent in 1981. A portion of the improved inflation performance of the U.S. economy is therefore attributable

to exchange-rate and balance of payments developments. As such, the improvement represents a transfer that may well be reversed if the dollar declines because of a narrowing of international interest rate differentials or for some other cause.

Rising interest rates, which are in part caused by high budget deficits, also add to the budget deficits of government at all levels. Interest rates paid on Federal government obligations began their recent escalation in 1978. Federal debt held by the public totalled \$551.8 billion in Fiscal Year (FY) 1977. By FY 1983 it had increased 106.9 percent to a level of \$1,141.8 billion. Interest paid on this debt increased even more rapidly, rising 191.0 percent, from \$29.9 billion to \$87.0 billion. The average rate of interest paid on the debt in FY 1977 was 5.4 percent as compared with 7.6 percent in FY 1983. Had the FY 1983 debt been financed at the FY 1977 rate, there would have been a saving in budget outlays of \$25.3 billion, or almost one-third of current interest costs. The estimated FY 1984 debt of roughly \$1,339 billion implies an interest cost of \$13 billion for every percentage point of interest paid.

III. THE CAUSES OF HIGH INTEREST RATES

A. Conditions for Stable Interest Rates

The acid test of any argument to explain a rise in interest rates is: does the proposed cause disrupt "monetary equilibrium" in a way that raises the demand for money relative to its supply? A major factor determining the demand for money is the level of total spending in the economy. Any factor (other than a decline in interest rates) that increases total spending tends, simultaneously, to raise interest rates.

Monetary equilibrium also implies that the supplies of other portfolio assets are in balance with their demands. The two conditions must be simultaneously achieved. If people feel that their portfolios are overstocked with money, they must also feel they are understocked with other portfolio assets. This condition for stable interest rates is central to subsequent discussion, especially the discussion of Section III-D.

The condition that the supplies of portfolio assets be equal to their demands implies that total national saving must equal total investment, since otherwise there would be an excess (or deficiency) of bonds and other financial assets relative to their demand. Private saving, which represents unconsumed income, constitutes a demand for financial assets such as new securities. Investment, conversely, provides a supply of new securities. When the government runs a budget deficit, it adds to the supply of securities that must be financed, the deficit being regarded as a negative component of national saving.

B. Supply Shocks as a Cause of High Interest Rates

The focus of attention in recent explanations of high interest rates has been on monetary policy and the budget deficit. However, the initial burst of higher interest rates that began in mid-1979 seems to have had, as its primary driving force, the second major round of world oil price increases.

Supply shocks, such as a rise in the price of oil, a reduction in agricultural supplies caused by poor harvests, or such less spectacular but important developments as increases in indirect taxes and legal minimum wages, have in common the characteristic that after their occurrence the economy can no longer produce existing output levels at pre-existing price levels. The upward push in the price level that follows such a shock has the effect of reducing the purchasing power value of the money stock. Economists call this a reduction in the real quantity of money, or the real value of the money supply. Since the supply of money declines in real terms relative to its demand, interest rates are forced up. Put differently, existing nominal money balances are no longer adequate to finance the same level of economic activity at the new higher price level. Wealth holders must then attempt to supplement their money holdings by selling such assets as bonds or by taking out loans. These responses mean that interest rates must rise because of the competition for funds.

Real interest rates could be prevented from rising by a monetary policy that accommodates the inflation in a manner that maintains growth of the real quantity of money. But that is asking the Federal Reserve to raise the rate of monetary growth at a time of accelerating inflation. The Federal Reserve did not provide such accommodation in 1979. While nominal M_1 and M_2 grew at rates of 7.7 and

8.3 percent respectively, the rapid inflation implied a decline in the real values of these magnitudes of -0.1 and -0.4 percent respectively. Monetary growth rates, both nominal and real, are shown in Table 1.

Table 1
MONETARY GROWTH RATES*
(PERCENTS)

<u>YEAR</u>	<u>NOMINAL</u>		<u>REAL**</u>	
	<u>M₁</u>	<u>M₂</u>	<u>M₁</u>	<u>M₂</u>
1978	8.2	8.5	0.8	1.0
1979	7.7	8.3	-0.1	-0.4
1980	6.2	8.1	-2.7	-1.0
1981	7.1	9.5	-2.0	0.2
1982	6.7	9.4	0.6	3.2
1983	11.0	12.6	6.5	8.1

* Money supply figures are annual averages.

** Real money supply measures are calculated by deflating nominal values by the implicit price deflator for Gross National Product.

Source: Board of Governors of the Federal Reserve System and Department of Commerce.

C. Monetary-Fiscal Policies and High Interest Rates

Most observers attribute the continuation of high interest rates primarily to the massive shifts in monetary and fiscal policies that began in 1979. This shift has consisted of a combination of expansionary fiscal measures, including expenditure expansion and tax reduction, along with a monetary policy that at times has been harshly restrictive. Various measures, designed to show this shift in policies, are shown in Table 2.

Table 2

MEASURES OF MONETARY AND FISCAL IMPACT

YEAR	M ₂		BUDGET DEFICIT* (BILLIONS)		
	REAL GROWTH RATE (percent)	RATIO TO GNP	RATIO TO POTENTIAL GNP	ACTUAL	STRUCTURAL
1978	1.0	.619	.608	\$ 29.5	15.1
1979	-0.4	.600	.591	16.1	2.1
1980	-1.0	.596	.571	61.2	21.3
1981	0.2	.581	.551	62.2	2.6
1982	3.2	.611	.552	147.1	37.2
1983	8.1	.639	.581	179.3	62.2

* Calendar years, billions of dollars.

Source: Economic Indicators. For estimates of structural deficits, U.S. Department of Commerce. Bureau of Economic Analysis. Survey of Current Business. The High Employment Budget: Revised Estimates and Automatic Inflation Effects by Frank de Leeuw and Thomas M. Holloway. April, 1982.

An expansionary fiscal policy such as a tax reduction tends to raise interest rates because the increased volume of Federal debt in need of financing is only partially offset by increased saving in the private sector of the economy. Consequently, the demand and supply pressures in security markets force bond prices down and interest rates up. An alternative, and equivalent, way to look at the matter is to note that expansionary fiscal policy raises total spending in the economy and therefore increases the demand for money and credit, thereby forcing up interest rates.

Restrictive monetary policy is usually conducted by the sale of government securities on the open market by the Federal Reserve system. This increases

the supply of securities that must be absorbed in private markets much as in the manner of an expansionary fiscal policy. In addition, the money supply is reduced. Portfolio readjustment then raises the price of the relatively scarce asset (money) and reduces the prices of the relatively more plentiful assets (securities) and this means that interest rates rise.

Fiscal policy became sharply expansionary in 1982. Higher Federal expenditures reflect the defense buildup, rising interest costs, and growth of entitlement programs. At the same time, revenues fell in response to the Economic Recovery Tax Act of 1981. A large fraction of recent deficits is the consequence of recession. But even after allowance for recession there has been an enormous rise in the so-called structural deficit. A rule of thumb which permits this deficit to be quickly estimated is that revenue lost to the Treasury per one percentage point of unemployment comes to roughly \$18 billion annually. At the same time, higher expenditures, primarily on unemployment compensation, add \$6 billion to the deficit. Utilizing a 5.1 percent unemployment rate as its "benchmark" or "high employment" standard, the Commerce Department estimated a structural deficit of only \$2.6 billion for 1981. ^{4/} However, the same standard applied to 1982 yields a structural deficit of \$37.2 billion and an annual rate of \$62.2 billion for the first three quarters of 1983. As a percentage of GNP, these deficits have risen from a negligible amount in 1981 to 1.2 percent in 1982 and 1.9 percent in 1983. According to projections by the Congressional Budget Office, the structural deficits, both in absolute terms and as a percentage of GNP, will continue to widen if current

^{4/} U.S. Department of Commerce. Bureau of Economic Analysis. Survey of Current Business. The High Employment Budget: Revised Estimates and Automatic Inflation Effects by Frank de Leeuw and Thomas M. Holloway. April, 1982.

fiscal policies are continued. This implies that fiscal policy will become progressively more expansionary as the economy continues to recover and it suggests that there will be continuing upward pressure on interest rates. 5/

Unlike fiscal policy, in which changes in the structural deficit serve as generally accepted measures of the degree of fiscal easing or tightening, there is no simple and widely accepted measure of monetary tightness. Sometimes interest rates themselves are used to indicate the direction of monetary policy. But this measure cannot isolate the effect of monetary policy because interest rates are subject to many other influences. Another measure is the rate of monetary growth. But nominal rates of money growth may be misleading. If inflation is advancing rapidly, the financing provided by a fairly high rate of monetary growth will be soaked up in the financing of inflation, leaving little room for the financing of real growth. If inflation is low, the same rate of nominal money growth may be highly expansionary since it then implies the availability of financing for real output growth. To eliminate the effect of inflation, it is helpful to inspect the growth of the real quantity of money, that is, the nominal quantity of money divided by an index of prices such as the implicit price deflator for GNP. Even here there may be misleading signals because of

5/ Considerable dispute surrounds the selection of an appropriate benchmark unemployment rate. Presumably, this rate should reflect the conditions in labor markets conducive to wage stability in the sense that wage changes on the average are no greater and no less than the growth of labor productivity. In the 1983 Economic Report of the President the Council of Economic Advisers suggests that the benchmark may be as high as 6.5 percent, although 6 percent seems more appropriately to reflect the consensus among economists and is the rate utilized by the Congressional Budget Office in its report, The Economic Outlook, February 1984. With a 6 percent benchmark unemployment rate, the cyclical component of the deficit is reduced by about \$21.5 billion, and this amount is added to the estimated structural deficit. Consequently, the estimated structural deficits reported in Table 2 would rise from \$37.2 billion to \$58.7 billion for 1982 and from \$62.2 billion to \$83.7 billion for 1983.

the possible presence of erratic changes in the velocity of circulation of money. The measures shown in Table 2 utilize M2 as the monetary aggregate. The velocity of M2 is somewhat more stable than the velocity of M1, and it exhibits no long run trend. Moreover, M2 is a broader and more inclusive measure of money supply.

Assuming that the growth of potential GNP is approximately 3 percent, a growth of real M2 in that general neighborhood would be required to finance such GNP growth at stable interest rates. ^{6/} By this standard, monetary policy became restrictive in 1979 as real M2 declined by 0.4 percent. Monetary policy remained tight in 1980 and 1981 showing real changes of -1.0 percent and 0.2 percent in the respective years. Policy then appeared to return to a track designed to finance real economic growth with real money growth of 3.2 percent in 1982 and 8.1 percent in 1983.

A measure that provides a different perspective by suggesting how much room for growth monetary policy is providing is the ratio of money stock to GNP. The ratio stood at 0.619 in 1978. It fell drastically to 0.600 in 1979 and again in 1981. It then recovered to 0.611 in 1982 and 0.639 in 1983.

Although this cash-balance ratio suggests that monetary policy is again on a track designed to finance real growth at stable interest rates, this is somewhat misleading. Tight money reduces the growth of GNP; thus the slower growth of the numerator of the cash-balance ratio slows the denominator of the ratio as well. A more instructive measure of the shortfall of money supply is the ratio of money to potential GNP, i.e., the GNP level that is associated with the

^{6/} The assumption of the text that stable interest rates are implied by growth in real M2 at a rate equal to the growth of potential GNP is a rough approximation that must be qualified. If inflation is advancing rapidly the real value of the private sector's net claims against the government diminishes. Consequently, inflation implies a "wealth effect" that makes the private sector poorer. This, in turn, tends to reduce spending by households thereby tending to depress interest rates. Such an effect would, of course, be absent if there is no inflation. Thus the same rate of real money growth may imply different interest rates at different inflation rates. Such wealth effects and their implications for interest rates are discussed in Section III-D.

benchmark unemployment rate. If that ratio is declining or remaining low relative to an earlier period, it can be inferred that the growth of money in the economy is inadequate to finance a high level of economic activity in combination with real interest rates that are no higher than at a previous time when actual output equaled potential output.

The potential GNP estimates used in these calculations derive from Okun's Law. According to this well-known relationship, a one-percentage-point increase in the unemployment rate above a benchmark level of 5.1 percent implies a shortfall of actual GNP below potential GNP of 2.1 percent. Estimates of the ratio of M_2 to potential GNP derived in this manner show a ratio of 0.608 in 1978. This declined sharply over three years to 0.551 in 1981. Unlike the ratio of M_2 to actual GNP, which increased in 1982 because of meager growth in GNP, the ratio of M_2 to potential GNP remained roughly constant in 1982. The ratio finally began to rise in 1983. However, its level of 0.581 left it far below the 0.608 ratio of 1978. A ratio of M_2 to potential GNP equal to that of 1978 would imply an M_2 level 4.7 percent higher than the actual level of 1983. This implies a very substantial "implicit" money gap from the levels that would be needed to finance potential GNP at 1978's real interest rates.

The implicit money gap suggests that higher rates of monetary growth from a low base may be sufficient to finance the recovery of GNP, but they are insufficient to do so except at interest rates that are likely to remain higher than at levels prior to the recent cycle. Put differently, a drastic retardation in money growth, such as occurred between 1978 and 1981, may reduce the nominal money stock permanently relative to potential GNP. The economy initially adjusts to such a shortage by bidding up the cost of money. However, in the longer run, most economists would agree that its primary effect would be to reduce the rate of inflation.

D. Interest Rates and the Relative Supplies of Financial Assets

Analysis of the kind conducted in the previous section suggests that in the absence of national income growth, interest rates will tend to remain constant provided the supply of money and the level of the budget deficit remain the same. In this case fiscal policy adds identical amounts of stimulus in successive periods. If the demand for money is primarily a function of the level of income and the rate of interest, a constant money supply would permit the demand for money to be equated with its supply at interest rates that remain the same.

The conditions for what might be described as an "interest-neutral" policy stance as between two periods is more complicated in an environment of economic growth. In that event a budgetary stance that maintains constant interest rates implies a structural deficit that remains constant relative to GNP. Similarly, an interest-neutral monetary policy is a policy that finances the growth of GNP. In the case of M_2 , which shows no secular velocity change, this implies a rate of M_2 growth equal to the rate of growth of GNP. In the case of M_1 which has shown a trend rate of velocity increase of about 3 percent annually, this implies a rate of M_1 growth that is 3 percent less than the growth of nominal GNP. Presumably, the demand for money grows at these rates and that, therefore, indicates the rates at which the money stock measures must grow in order to maintain constant interest rates.

The above are the results predicted by conventional macroeconomic analysis. They are based on the notion that the demand for money depends on the level of national income and the rate of interest. A rise in national income increases the amount of money needed to support additional business and household transactions. A rise in the rate of interest increases the cost of holding idle money balances

just as it increases the cost of holding any other stock of inventory. This higher cost causes wealth holders with substantial money holdings to convert portions of these holdings into earning assets. The result, is to reduce the quantity of money demanded. Reflected in actual behavior, this means lower average cash balances relative to the volume of transactions; which is the same as saying, a higher velocity, or rate of turnover, of money.

Many students of the demand for money consider this explanation to be incomplete. They begin with the idea that the decision to hold money is a portfolio decision. Money in this view is held as an asset along with other assets varying by degree of risk, return, and liquidity. The typical investor is assumed to be a portfolio diversifier who holds a wide spectrum of assets including money. The latter is held because the low risk attached to money holding offsets the absence of return. Should interest rates rise, the market then supplies a more favorable rate at which higher risk can be converted into return. The wealth holder takes advantage of the situation by converting some of his money holdings into earning assets, adjusting his portfolio in a manner that causes him to assume more risk in return for higher earnings.

An important implication of the modern theory of the demand for money, or liquidity preference as it is frequently called, is that an increase in wealth will cause a wealth holder to distribute his additional wealth in a diversified manner. If a wealth holder is given more money, he will wish to keep only part of it, using the remainder to purchase other assets. Conversely, if he is given more of a different asset, such as bonds, he will wish to keep only part of the

additional bonds, converting the remainder into other assets including money. 7/

This reasoning supplies another important way in which fiscal policy may affect interest rates. In conventional macroeconomics a given level of budget deficit is associated with a given level of interest rates. But the portfolio approach to the demand for money suggests that this may be in error because even a constant level of budget deficit changes the wealth of the private sector continuously as new public debt is issued.

Specifically, the presence of a budget deficit means that the financial wealth of the private sector is increasing. When the government engages in an act of spending by drawing down its cash balances, this results in an increase in the money holdings and wealth of the private sector of the economy. If the government replenishes its accounts by an equal tax, the flow of money and wealth are reversed. Consequently, a balanced budget implies that there is no net flow of financial wealth between the private and the government sectors.

If the government replenishes its accounts by the sale of bonds, the wealth transfer becomes permanent. However, the form which the wealth transfer takes depends on whether the bonds are sold to the private sector or whether they are absorbed by the Federal Reserve. In the latter case, which is called monetization of the debt, the private sector keeps the money which it received from the government expenditure, while the Federal Reserve receives the bonds. In this case the budget deficit may have little effect on interest rates because the added expenditures by the government, as well as subsequently induced expenditures that result from the expansion of income, are matched by an increase in the money supply in a way that could easily keep the supply of money equal to its demand.

7/ The seminal work is Tobin, James. Liquidity Preference as Behavior Towards Risk. Review of Economic Studies, 1958. p. 65-86.

Interest rates are, however, very likely to rise when a budget deficit is financed by the sale of bonds to the private sector. Such a rise would occur even if the deficit merely remained constant, and it might even be true if the deficit declined somewhat. Even a constant deficit from year to year implies that the financial wealth of the private sector of the economy is increasing. If this increase is in the form of bonds, wealth holders who seek to diversify their portfolios will wish to hold more of all the assets in their portfolios, including money. Consequently, the presence of a budget deficit implies that the portfolio demand for money increases so that interest rates will tend to rise. Put differently, wealth holders will attempt to substitute other assets for some of the new bonds they receive. Substitution of this sort drives down bond prices, which in turn raises interest rates. 8/

This possibility calls attention to the importance of the relative supplies of financial assets in determining interest rates. When these supplies do not follow a path that keeps such assets as bonds and money growing in rough proportion, the effect on interest rates could be substantial. Between FY 1978 and

8/ The discussion follows Blinder, Alan S. and Robert M. Solow. Analytical Foundations of Fiscal Policy, in The Economics of Public Finance, (Alan S. Blinder, ed.), The Brookings Institution, 1974. See also Friedman, Benjamin M. Crowding Out or Crowding In? Economic Consequences of Financing Government Deficits, Brookings Papers on Economic Activity, v.3, 1978. p. 593-654. Friedman is critical of the Blinder-Solow analysis claiming that it presumes a two-asset world where the only portfolio assets are government bonds and money. Friedman would add private capital as a third major asset component. He then reasons that the increase in wealth caused by a bond financed deficit may raise the demand for corporate bonds and equities so that the interest rates relevant to corporate investment decisions may, in fact, fall. Investment may then increase despite a rise in interest rates on government securities. However, for this effect to produce "portfolio crowding in", as Friedman calls it, depends on the controversial assumption that government bonds and money are close substitutes (in which case the increased wealth has little impact on the demand for money), while government bonds and corporate bonds and stocks are poor substitutes (thereby causing the wealth effect to raise the demand for corporate bonds). (continued)

1983 the government debt held by the private sector rose at an average annual rate of 13.3 percent, whereas M_1 and M_2 grew at rates of 7.4 percent and 9.2 percent respectively. The differences in these growth rates in the supplies of financial assets diverged sharply during the latter part of this period. Between 1981 and 1983 the growth of debt accelerated to an annual rate of 19.9 percent while the monetary growth rates were held to rates of 8.4 and 9.7 percent for M_1 and M_2 respectively.

The budget deficit of \$179.7 billion projected for FY 1984 in the administration's Mid-Session Review is less than the deficit of \$195.4 billion estimated for FY 1983. Nevertheless, it implies growth of privately held government debt of 13 percent, assuming that the 1983 ratio of private to gross Federal debt persists. The monetary growth targets for 1984 announced by the Federal Reserve are 4 to 8 percent for M_1 and 6.5 to 9.5 percent for M_2 . Even at the top of these ranges, it seems clear that relative supplies of financial assets will continue to change in a manner likely to place upward pressure on interest rates.

The portfolio effect described above will tend to raise interest rates and slow spending on interest-sensitive expenditure components. On the other hand, the increase in wealth caused by deficit financing will tend to raise consumption. This spending effect will add to the upward pressure on interest rates. However, its effect on spending is expansionary.

E. Supply Side Tax Cuts and Interest Rates

During the debate that preceded the Economic Recovery Tax Act of 1981 proponents of so called "supply side" tax cuts were suggesting that income tax

(continued) Ultimately, the wealth-interest relationship depends on the extent to which the demand for money depends on wealth. The empirical evidence, which is surveyed by Friedman, is mixed. However, the author regards it as sufficiently robust to cause genuine concern over "portfolio crowdout".

Friedman provides a useful distinction between transactions crowd out and portfolio crowd out. Transactions crowdout means that a rise in the structural deficit increases spending and the demand for money. This raises interest rates and reduces investment. Portfolio crowdout refers to the financial effects caused by the deficit as discussed in this section of the text.

reductions would provide incentives to "save and invest." The implication of the argument was that interest rates would fall since tax cuts increase the supply of saving. A cut in personal taxes increases the disposable (after-tax) incomes of households. A fraction of this gain is used to raise consumption while the remainder is saved. The higher savings then create a demand for securities or, which is to say the same thing, increase the supply of finance available for investment. The supply siders seemed to assume that this would increase security prices, reduce interest rates, and thus provide more favorable terms for the borrowing needed to finance investment projects.

This argument appears to be based on the notion that it is only private saving that enters into the determination of interest rates. However, interest rates are determined by total national saving relative to investment. The budget deficit is a major negative component of national saving. Suppose that a tax reduction of \$1 raises private consumption by 75 cents and saving by 25 cents. This adds 25 cents to the supply of finance. But, since the budget deficit rises by the full \$1, the demand for financing increases by that amount. Consequently, total national saving is reduced by 75 cents. The supply of new securities therefore increases by more than its demand. The consequence is that security prices fall and interest rates rise.

Possibly the apparent error arises from a failure to distinguish between the effects of tax reduction from the effects of tax reform. For example, a tax reform that exempts saving from taxation, while yielding the same revenue as before, might result in a higher level of private saving. Since the reform is effected without increasing the deficit, total national saving increases and interest rates therefore decline.

F. Financial Innovations and Interest Rates

It is often suggested that high interest rates have spurred many of the financial innovations of recent years. At the same time certain financial

innovations may have contributed to higher interest rates. The most obvious of the changes that may have operated in this manner is the payment of interest on checking accounts. Since checking accounts previously paid no interest, the fact that they now pay interest forces borrowers to pay higher rates for funds. A change from zero to five percent interest on transactions accounts in some way raises the cost basis on which all interest rates are determined.

The higher cost of acquiring funds raises the rates charged for bank loans. Thus, such rates as the prime lending rate and the commercial paper rate are likely to remain permanently higher as the result of this financial innovation. But what about other interest rates? The macroeconomic interpretation of the effect of the NOW account is that it has raised the demand for money. With a zero rate of interest on deposits, wealth holders have a strong incentive to hold as few transactions balances as possible. Once interest is earned on transactions accounts, however, this pressure to economize diminishes so that the demand for money increases and interest rates rise. To put it differently, there is a substitution away from other financial assets into NOW accounts which has a depressing effect on the prices of competing assets.

Money market funds, which have grown rapidly in recent years and which are now included as part of M_2 , have probably had a similar effect. They raise the demand for M_2 relative to the demand for alternative financial assets and, therefore, tend to raise all interest rates. The extraordinarily sharp 1982 reduction in velocity is probably partly attributable to the growth of NOW accounts and money market mutual funds.

Higher interest rates are the consequence of the increase in the demand for money. The higher rates are not necessarily permanent as is assumed by those who speak of these innovations as causing an upward ratcheting. An alternative interpretation of the influence of these innovations suggests that the effects on most interest rates can be offset by a one-time monetary accommodation that matches the increase in liquidity preference. This accommodation should, in fact, reduce bank rates since there is no reason to suppose that banks would continue to pay current rates on NOW accounts if that is not necessary to obtain funds. The rise in interest rates caused by the rise in liquidity preference is not, therefore, seen as necessarily permanent although those rates that are the most closely related to bank lending are apt to remain permanently higher than prior to the innovations.

G. Expectations and Interest Rates

Another set of arguments identifies expectations as a contributing cause of high current interest rates. Two such arguments are prominent. The first is that inflationary expectations continue to be high. This tends to raise nominal interest rates, as explained below. The second is that the persistence of large budget deficits ensures high interest rates in the future, and the market's response to this is to raise interest rates in the present.

As noted at the beginning of this paper, differences in inflation rates cannot explain the differences between current interest rates and rates experienced at comparable stages of past business cycles. However, it is possible that the expected rate of inflation may be higher today than it was in 1975-76. Some would claim that recent experience with consumer prices rising in excess of 10 percent a year has created an environment of generally greater inflationary expectations, while others believe that the persistence of a budget deficit provides a basis for forecasting a reacceleration of inflation. If so, the expected rate of inflation could account, in part, for higher interest rates.

In discussing the effects of inflationary expectations, nominal rates of interest should be distinguished from real rates of interest. The real rate of interest equals the nominal rate of interest minus the expected rate of inflation. If the expected rate of inflation is 5 percent, a loan made at 5 percent merely retains its purchasing power without earning any real return to the lender. Thus, the nominal rate of interest must exceed the expected rate of inflation to provide an expected return in excess of the amount needed to keep purchasing power intact.

A rise in the expected rate of inflation increases the spread between real and nominal rates of interest. If the real rate of interest remains unchanged, this increase in the spread implies an increase in nominal interest rates. It is for this reason that expansionary monetary policy is sometimes regarded by financial writers as a cause of rising, rather than falling, interest rates. The argument is that a rise in the rate of nominal money growth raises the expected rate of inflation. It, therefore, widens the spread between real and nominal rates and raises the nominal rate. 9/

The argument seems inconsistent with fundamental economic logic inasmuch as it implies that the price of a commodity increases when its supply increases relative to demand. But it is not quite so illogical when the real rather than the nominal price is considered. A rise in the expected rate of inflation should have the effect of reducing liquidity preference because the holding of cash balances becomes less attractive as the expected rate of inflation rises. Wealth holders, therefore, become willing to accept a lower real rate of return on assets than before. They respond by converting cash into other assets, bidding up the

9/ An alternative explanation of this phenomenon is presented in Section III-B.

real prices of these assets and lowering their real yields. Therefore, while a rise in the expected rate of inflation may raise nominal interest rates, the rise will be less than the rise in the expected rate of inflation, and real rates of interest should fall. This, then, re-establishes faith in the proposition that an increase in the supply of a commodity (in this case money) will lower its price. 10/

These considerations suggest that a high expected rate of inflation is expansionary. Investment decisions, for example, are based on the real cost of borrowing. A rise in the expected rate of inflation reduces this real cost, despite a rise in its nominal cost. It is, therefore, important to note that this source of high nominal interest rates cannot be used as an argument that high interest rates undermine the growth of demand and threaten recovery.

A critical difficulty with the inflationary expectations argument is that it cannot explain high short-term interest rates. The expected rate of inflation can hardly differ from the actual inflation rate over a short period such as 3 months. Consequently, the inflationary expectations argument cannot explain why short-term interest rates in the 1976 recession trough were 2 percentage points

10/ This widely accepted argument is attributable to Tobin, James. Money and Economic Growth. *Econometrica*, October 1965, p. 671-84. An additional argument is supplied by Mundell, Robert A. Inflation and Real Interest Rates. *Journal of Political Economy*, June 1963. p. 280-83. Mundell reasoned that a rise in the rate of inflation reduces the value of the net claims of the private sector against the government. These net claims, or real balances as they are called, consist of the monetary base plus government bonds. As a result of the erosion due to inflation, wealth holders suffer a decline in the real value of their wealth. Inasmuch as savings have been shown to respond inversely to changes in wealth, this then leads to a rise in the fraction of income saved by households. The increased savings add to the supply of finance and depress interest rates. Unlike Tobin's liquidity preference argument, the Mundell argument implies that a rise in the expected rate of inflation is restrictive because the fraction of income consumed declines. Most economists consider the Tobin effect to be the more powerful and a rise in the expected rate of inflation is therefore regarded as expansionary.

These considerations suggest that the rise in nominal interest rates will tend to be less than the rise in the expected rate of inflation because the real rate of interest declines. However, even with a decline in the real rate of interest, it is possible for nominal interest rates to rise by more than the rise in
(continued)

lower than in 1982, periods when actual inflation rates were roughly comparable. The argument is, however, helpful in explaining the increasing spread between short and long-term interest rates.

The second expectational argument is that persistently large budget deficits, in combination with continued strengthening of the private sector of the economy, will drive up interest rates in the future. This expectation of higher future rates of interest then holds current interest rates at elevated levels. This is a widely held view. The Council of Economic Advisers, for example, states it as follows:

The prospect of large budget deficits in the second half of this decade may also have an adverse effect on the prospects for recovery in 1983. If the financial markets respond to expected future deficits by keeping real long-term interest rates higher in 1983 than they would otherwise be, the level of spending in 1983 on interest-sensitive purchases may remain depressed. 11/

11/ Economic Report of the President, February 1983, p. 28.

(continued from previous page) the expected rate of inflation once taxes are taken into account. After one year, the nominal value of one dollar lent at a nominal rate of interest, i , and subject to a proportional tax at a rate of t percent is $1 + i(1-t)$. This must equal the real value of the asset after allowance for expected inflation. Accordingly,

$$1 + i(1-t) = (1+r)(1-x)$$

where r is the real after tax rate of interest and x is the expected rate of inflation. The solution for the nominal rate of interest is,

$$i = \frac{r + x + rx}{1 - t}$$

If the real rate of interest is held constant, the rise in the nominal rate of interest with respect to the expected rate of inflation is,

$$\frac{di}{dx} = \frac{1 + r}{1 - t}$$

Since this exceeds unity, it implies that a rise in the inflation rate increases the spread between real and nominal rates of interest by a factor greater than 1. On this point see Peek, Joe. Interest Rates, Income Taxes, and Anticipated Inflation. American Economic Review, December 1982. p 980-991.

Many investors expect a rise in interest rates in the near future. Congress may take no major fiscal policy action during the election year. If not, fiscal policy will remain expansionary. As the economy continues to recover the demand for money will increase and the supply of government securities needing to be financed will also increase. This means there will be strong forces from the fiscal side making for higher interest rates. Whether rates will, in fact, rise depends on how the Federal Reserve responds. Interest rates will remain stable if the rapid real rates of monetary growth of the first half of 1983 are resumed in 1984. If this gives rise to a revival of inflation and inflationary expectations, nominal interest rates will rise, although real rates may fall. However, if the Federal Reserve responds to the emergence of inflationary pressure by slowing rates of monetary growth, then surely both real and nominal interest rates will rise.

A popular expectation is that the Federal Reserve will succumb to election year pressure by raising the rate of monetary growth in the months prior to election. In that "political business cycle" scenario, interest rates will come down somewhat in 1984. If that happened, a decline in rates would require a highly expansionary monetary policy, leading most likely to an overheating of the economy and a revival of inflation. Interest rates would then rise in late 1984 and 1985 as the Federal Reserve again tightened its monetary grip and as rising inflationary expectations drove up nominal interest rates.

The behavior of the Federal Reserve to the present does not support the political business cycle hypothesis, keeping in mind that the 1984 campaign still has several months to run. Although monetary growth rates were extremely high through the first half of 1983, with M2 growing at an annual rate of 16.4 percent, there has been a sharp tailing off since that time to a rate of 6.8 percent from June to December.

All in all, it is reasonable to expect that interest rates will rise if the economic recovery continues. The current fiscal-monetary mix makes this outcome likely. How, then, does this affect current interest rates? The expectation of a rise in interest rates carries with it the expectation of capital losses on long-term instruments because bond prices vary inversely with respect to interest rates. Therefore, the investor who expects interest rates to rise will tend to move out of long term bonds into other assets including money. Such an increase in liquidity preference implies that long term interest rates will be higher at present because of the expectation of higher future interest rates. Borrowers, too, may respond in a way that raises long-term interest rates. If they believe the cost of long-term commitments will rise, they may accelerate their spending plans, borrowing now while interest rates are lower than those expected in the future. This, too, tends to raise current interest rates by increasing the demand for money. Rather than retard recovery, this source of higher interest rates adds stimulus in the form of higher present spending to the economy.

The declining attractiveness of long-term lending in the face of an expected rise in interest rates should be reflected in an increase in short-term lending. Similarly, erstwhile short-term borrowers may move towards longer-term commitments in order to avoid the rising interest costs expected in the future. For these reasons, the expectation of a rise in interest rates is likely to have its principal effect in widening the spread between short-term and long-term interest rates. Long-term rates may be higher because of higher expected interest rates, but short-term rates should be lower.

H. High Interest Rates as a Consequence of Variable Rates

In October 1979 the Federal Reserve changed its operating procedures away from a policy that it said was designed to prevent major fluctuations in interest rates towards a "monetarist" posture that ignores interest rates and seeks,

instead, to maintain steady growth of monetary aggregates within sets of previously announced target ranges. Specifically, targets for the Federal funds rate were abandoned and replaced by target levels of non-borrowed reserves.

The variability of interest rates has increased since the policy switch. If the demand for money and credit increase at a more rapid rate than the monetary growth target, interest rates will rise. If the demand for money and credit declines, while monetary growth rates are maintained at previously announced rates, interest rates will fall. 14/

A measure of such variability is the standard deviation of the return on different asset categories. Such calculations have been made by Bodie, Kane, and McDonald 15/ for the period January 1977-September 1979 and compared with the period January 1980-December 1981. The results show a startling increase in variability. Long-term bonds are the most severely affected, showing an increase in the standard deviation of return of from 5.4 percent on 8 year bonds in the earlier period to 20.4 percent in the later period.

These same authors argue that the increase in the variability of return increases the risk premiums that must be added to real interest rates to induce lenders to invest in longer-term instruments. They, therefore, find the explanation for higher long-term interest rates to lie in the increased variability of

14/ Fair, Ray C. Estimated Effects of the October 1979 Changes in Monetary Policy on the 1980 Economy. American Economic Review, May 1981, p. 160-165. Fair estimates that the 3-month Treasury bill rate was higher in the fourth quarter of 1979 and first quarter of 1980 (by 1.58 and 1.59 percentage points, respectively) and lower by 2.22 percentage points in the second quarter of 1980, than it would have been had the Federal Reserve continued its previous policies. These earlier policies are described by Fair as "leaning against the wind." This means the Federal Reserve permitted short-term interest rates to rise by a limited predetermined amount in response to an increase in real economic activity, in the rate of inflation, and in the past growth of the money supply. These factors are ignored under the new policy which targets monetary aggregates alone and permits interest rates to find their own level.

15/ Bodie, Z., A. Kane, and R. McDonald. Why Are Real Interest Rates So High? National Bureau of Economic Research, Working Paper No. 1141.

interest rates caused by the shift in Federal Reserve policy. The argument is that fluctuating interest rates make for higher real interest rates because of increases in risk premiums.

The calculation of risk premiums varies with assumptions about the relative degree of risk aversion on the part of investors. Within the range assumed to be reasonable by the authors, the differences in risk premium on 8 year bonds are at least 1.1 percentage points for low risk aversion, and could be as high as 6.4 percent if the risk aversion were great. Thus, higher variability of return, implied by fluctuating interest rates, helps to explain the continuation of high yields on long-term bonds as well as on equities and other securities whose prices are sensitive to interest rates. But, as noted by these authors, higher short-term interest rates cannot be explained in this manner.

IV. INTEREST RATE POLICYA. Interest Rate Targeting

If fluctuating interest rates are a cause of high interest rates and increased uncertainty, it is important to ask whether the Federal Reserve should return to a policy stance that reduces the variability of interest rates. Indeed, concern over high interest rates has led to demands for the Federal Reserve to alleviate the situation by targeting its monetary policies to achieve lower interest rates. Speculation in the financial press in December 1983 suggested that the Federal Reserve had, in fact, once again changed its policy in a way that directed monetary policy to the attainment of interest rate targets rather than the monetary growth targets prescribed in legislation.

Critics of Federal Reserve policy have long claimed that it is the responsibility of monetary policy to target overall national goals such as high employment, rapid growth, and price stability. Such critics contend that the Federal Reserve has resisted pressure to show how its policies are designed to achieve these goals, preferring, rather, to focus on proximate targets more readily within its control. Such proximate targets are interest rates and the rates of growth of the monetary aggregates. Indeed, the Federal Reserve Reform Act of 1977 now obliges the Federal Reserve to establish target ranges for these aggregates.

Targeting interest rates may be appropriate when the attainment of an interest rate target is consistent with other major objectives. During a recession, when unemployment is higher than desirable, a consistent monetary policy would be one that attempts to bring down interest rates. If inflation is the primary problem, a restrictive monetary policy that brings about higher interest rates may well be appropriate. If it is desirable to accelerate economic growth, expansionary monetary policy is appropriate. But if the economy is close to full employment, such monetary expansion should be accompanied by more restrictive fiscal policy, to offset the inflationary effects of the monetary policy.

One circumstance in which it is appropriate to target interest rates is when the source of an undesirable movement in the economy is monetary in origin. An increase in liquidity preference due perhaps to a financial innovation tends to raise interest rates and lower income growth. If expansionary monetary policy prevents interest rates from rising, this also prevents the decline in income. Thus, in the event of a monetary shock, a policy that targets, or pegs, interest rates helps provide overall stability to the economy. This outcome follows from the general rule that normally it is best to deal with a shock at the source; a monetary shock, in this case, being offset by a monetary response.

Unfortunately, the record suggests that in many cases the shocks that cause national income to change are so-called real shocks. A real demand shock might be a decline in consumer demand due to deteriorating consumer sentiment, a decline in capital spending due to a lull in inventive activity, a decline in exports due to deteriorating foreign economic conditions, or a fiscal policy that either directly affects total spending through a change in government purchases or indirectly through a change in consumption caused by a tax change or a change in government transfer expenditures. All such real demand shocks have the common characteristic that they tend to move national income and interest rates in the same direction. For example, a decline in investment spending lowers national income. Since this reduces the demand for money, it also lowers interest rates. If the Federal Reserve attempts to prevent the decline in interest rates, it must pursue a restrictive monetary policy. However, such a policy further lowers national income and exacerbates the contraction in the economy. Thus an interest-rate targeting policy can be seen to be a destabilizing force if pursued in response to real demand shocks.

Supply shocks generally have both a monetary and a real component. For example, the rise in the price of imported oil directly reduces the real quantity of money since it raises the overall price level. This price effect raises interest rates and tends to reduce national income. The rise in the price of oil also acts in much the same manner as an increase in excise taxes. Since the short-run responsiveness of the demand for oil with respect to its price is known to be quite low, total expenditures on oil increase. This increase leaves less income available to spend on other goods and, therefore, has a restrictive effect, especially because a large fraction of the payments for oil flows abroad and may be spent or invested elsewhere.

The tax (income) effect of a supply shock tends to lower interest rates because it reduces aggregate spending in real terms. The price effect works in the opposite direction because it lowers the real value of the money supply. If the income effect is dominant, interest rates will fall. An interest rate pegging policy then exacerbates the decline in national income since it implies a restrictive monetary policy. If the price effect dominates, interest rates rise, and an interest rate pegging policy then implies an expansionary monetary policy that cushions the decline in income but risks exacerbating the effect of the shock on the price level.

Interest rates rose sharply in 1974 and 1979 in the wake of the two OPEC price increases, suggesting that the Federal Reserve was far less concerned with stable interest rates than with stemming inflation. However, as a consequence, monetary policy contributed to the restrictive forces produced by the oil shocks. There is, unfortunately, no easy directive for monetary policy under the circumstances produced by a supply shock. Pegging interest rates leaves the outcome up to chance, depending upon whether the income or the price effect of the supply shock is dominant in influencing interest rates.

Under inflationary conditions interest rate targeting necessitates a decision by the Federal Reserve as to whether it is real or nominal rates of interest that should be targeted. It is real interest rates that determine borrowing and lending decisions so it is tempting to target such rates. However, the targeting of real interest rates would be very dangerous since any real rate of interest is compatible with vastly different inflation rates. If aggregate demand is excessive at the targeted real rate of interest, it will continue to be excessive as long as the Federal Reserve prevents the real rate of interest from rising. Indeed, such a policy implies that the Federal Reserve is prepared to underwrite any, and all, inflation rates. The targeting of real interest rates, therefore, provides no protection against inflation.

Targeting nominal interest rates creates new problems. If such policy is pursued, real interest rates are then determined by the rate of inflation, a high rate of inflation implying low real rates while a low rate of inflation implies high real rates. But low real rates during a period of inflation stimulate spending and add to inflation. Similarly, high real rates during a period of relative price stability are likely to have a restrictive effect at the wrong time because low inflation rates are likely to occur during a period of depressed economic conditions.

In conclusion: The analysis suggests that interest rate targeting has fundamental drawbacks when it forms the basis for the conduct monetary policy. While it may be true, as noted earlier, that the absence of such policy increases the variability of interest rates and therefore adds to risk premiums, the effect of this on the level of interest rates could be offset by a one-time monetary accommodation.

Fluctuating interest rates are frequently cited as causing fluctuations in interest-sensitive components of aggregate spending. It does not, however, follow that fixed interest rates would contribute to the overall stability of the economy. If investment demand declines for some reason unconnected to interest rates, national income declines and the demand for money therefore also declines. Interest rates therefore fall and this helps to cushion the decline in investment. Had the Federal Reserve pursued a restrictive monetary policy designed to prevent the decline in interest rates, the decline in investment would have been more pronounced. It is precisely because certain expenditure categories are interest-sensitive that causes fluctuating interest rates to be desirable. If no expenditure component were interest-sensitive, then it would hardly matter what monetary policy does.

B. Monetary Surprises, Interest Rates, and Federal Reserve Targets

Standard demand and supply considerations suggest that a rise in the money supply should be associated with a decline in interest rates. As noted earlier, however, the announcement of an unexpectedly large increase in the money supply has frequently been associated with an immediate rise in interest rates. One interpretation of this phenomenon is that an increase in the rate of monetary growth raises the expected rate of inflation. The higher rate of monetary growth therefore increases the spread between nominal and real interest rates, so that an increase in nominal interest rates is observed.

This argument cannot explain how a monetary surprise affects short-term interest rates. Since it takes at least a year before an increase in the rate of monetary growth has a discernible effect on the inflation rate, inflationary expectations cannot explain why short-term rates would respond in the manner indicated.

A more convincing explanation lies in the implications of the Federal Reserve's announced target rates of monetary growth. An increase in the money stock unexpectedly above the target may be temporary because the Federal Reserve may be presumed to react and return money growth to its target path. Thus, if wealth holders believe the money stock will decline in the future, they may also believe that interest rates will rise. Such an expected increase in interest rates would inflict capital losses on bond holders. They therefore hasten to substitute money for earning assets, causing interest rates to rise immediately.

In an analysis of this phenomenon Nichols, Small, and Webster ^{16/} note that the announcement of an unexpectedly large increase in the money stock provides new information, not new money. The interest rate response to this must then be attributable to the fact that the new information raises the demand for money. In addition, and this is crucial but frequently ignored, the announcement of a change in the money stock provides the same information about the demand for money as its supply. When the money stock increases by an unexpected amount, this reveals unanticipatedly strong demand for money.

This increase in demand may be only temporary. If it merely reflects a shock, the effect of the shock will diminish, but perhaps only slowly. Meanwhile, however, if the money stock is above target, the supply correction could occur rapidly through actions by the Federal Reserve to return to a target rate of monetary growth. Consequently, it is expected that in the near future the demand for money will exceed its supply and that interest rates will rise. The expectation of higher interest rates, implying capital losses, then produces market responses that raise the demand for money and lead to an immediate rise in interest rates.

^{16/} Nichols, D. A., D. H. Small and C. E. Webster, Jr., Why Interest Rates Rise when an Unexpectedly Large Money Stock is Announced. American Economic Review, June 1983, p. 383-388.

The phenomenon that rising interest rates accompany unexpectedly large increases in the money supply is of recent origin, having been observed only since the adoption in 1975 of H. Con. Res. 133, which required the Federal Reserve to establish and announce target ranges for growth of the monetary aggregates. It has been accentuated since October 1979 when the monetary policies actually pursued by the Federal Reserve came into closer conformity with the spirit of targeting monetary growth rates. Evidence in support of this is supplied by V. Vance Rolley 17/ who related short-term yields to unanticipated changes in money stock. The latter are constructed from a weekly survey of about sixty money market participants. The author finds no association between interest rates and the expected money stock. However, he does find such a relationship between interest rates and discrepancies between the actual and the expected changes in the money stock. Specifically, for the period September 29, 1977 to October 4, 1979 a positive and significant association is found between short-term interest rates and the difference between the actual and the expected change in the money stock. For the period October 11, 1979, to January 1, 1980, this positive relationship becomes almost eight times stronger, providing support for the hypothesis proposed here. Rolley's interpretation is similar to that of Nichols:

If an announcement was higher than expected. . .the observed rise in short-term yields most likely resulted from the market's assessment that the Federal Reserve would try to offset at least part of the unanticipated rise. Under the new monetary control procedures. . .two factors may cause it to be somewhat larger than before. First, under the reserve-aggregate approach, excess demand for reserves at a given level of money market yields is not accommodated by increasing non-borrowed reserves. Second, in conjunction with the adoption of the reserve-aggregate approach, the market may have detected a greater commitment on the part of the Federal Reserve to offset unanticipated fluctuations in money growth. 18/

17/ Rolley, V. Vance. The Response of Short-term Interest Rates to Weekly Money Announcements. Journal of Money, Credit and Banking, August 1983, p. 344-354.

18/ Ibid., p. 345-346.

The peculiar though understandable result that a sharp increase in the money supply tends to raise interest rates in the short run is not of major concern, provided the changes are temporary and do not interfere with the conduct of monetary policy. Inasmuch as they appear to be caused by the so called "reserve-aggregate" approach, it is important to investigate the latter question. The problems associated with interest-rate targeting were noted above. It is also appropriate, therefore to ask whether the reserve-aggregate approach is substantially superior.

The monetarist philosophy which underlies the reserve-aggregate approach is that it provides for orderly growth of money and credit in a way that finances economic growth at stable prices. Such a rule differs from interest rate targeting in that it permits interest rates to fluctuate in a manner that provides a cushioning, or stabilizing function. When the demand for money declines due to a decline in spending, the continuation of monetary growth at a pre-determined rate causes interest rates to decline thereby cushioning the decline in the economy. Conversely, when rapidly rising spending causes the demand for money to rise, the continuation of stable money growth causes interest rates to rise thereby dampening the expansion of the economy. Thus, the rule offers the advantage of avoiding the destabilizing implications of interest-rate targeting. It falls short, in the eyes of activist economists, in that it is a passive posture that makes no attempt to use monetary policy to offset fluctuations in aggregate spending.

Whether monetary policy should attempt such offsets is not the issue here. The question, rather, is whether adoption of the target ranges prescribed in legislation may in itself interfere with the objective of a stable money growth rule. The reasons for such concern lie in the perverse behavior of interest rates in response to unexpectedly large increases in the money stock. An example from experience illustrates the potential difficulty.

In the first half of 1977 nominal M_1 grew at a rate of 7.6 percent. That rate perked up to 9.3 percent in the third quarter and that seemed like good news because the recovery from the 1974-75 recession had been disappointingly slow up to that time. However, the acceleration of monetary growth coincided with a slowing in the rate of growth of velocity of M_1 and a sharp rise in short-term interest rates. Thus, although the growth of money supply accelerated in the third quarter, the demand for money quite unexpectedly accelerated even more rapidly.

At the time the target for M_1 growth was 4 to 6-1/2 percent. However, the actual rate of monetary growth jumped to an annual rate of 12.5 percent in July, and it then continued at a rate of 9.3 percent for the full third quarter. According to the financial press this sharp divergence between the actual and the target rates produced the widespread belief that the Federal Reserve would subsequently squeeze down the rate of monetary growth in order to get back on target. Indeed, Federal Reserve Chairman Arthur Burns' oft repeated statements that monetary growth rates had been excessive all along, and his frequent intimations that it might be necessary for the Fed to intervene in the foreign-exchange market to preserve what he termed the "integrity of the dollar," served to intensify this expectation.

The anticipation of an impending monetary crunch produced an unloading of various short-term financial assets in favor of cash balances. The consequence of this increase in liquidity preference was a slowdown in the rate of velocity growth combined with a very steep rise in short-term interest rates.

If this diagnosis is correct, it suggests that monetary policy might have been in the process of short-circuiting itself in a way that threatened to make for perennial monetary restriction. Because of the low target range and the expectations created by an above-target rate of monetary growth, the faster rate of

growth, rather than lowering interest rates and fostering economic expansion, caused the demand for money to increase for portfolio reasons. Thus, the economy was unable to enjoy the benefits of faster monetary growth. Conversely, it was impossible to raise the target ranges to accommodate a higher rate of monetary growth because of the pervasive fear that any such action heralded a weakening in the Federal Reserve's resolve to combat inflation. It would appear, then, that the establishment of target ranges for monetary policy produces a potentially severe technical problem that has yet to be resolved.

C. Changing the Monetary-Fiscal Mix

High interest rates are a primary reason for pressure to reduce the budget deficit. In many cases demands for deficit reduction are framed on the doubtful premise that deficit reduction alone is necessary to provide for sustained economic recovery. As noted earlier, such arguments may be valid in the longer-run if they refer to the danger of supply bottlenecks caused by inadequate capital spending. Frequently, however, they are put forward in a manner which suggests that recovery will be aborted because of the adverse effects of rising interest rates on aggregate demand.

Arguments which make the claim that a deficit-reducing policy such as a tax increase is needed to ensure recovery generally emphasize the favorable spending effects that would be caused by a decline in interest rates while ignoring the unfavorable spending effects of the policies that are responsible for the decline in interest rates. An income tax increase, for example, lowers interest rates because it reduces consumer spending. This decline in spending reduces the quantity of money demanded thereby lowering interest rates. The lower interest rates then improve other components of spending such as investment and net exports. But these increases must be less than the

But these increases must be less than the reduction in consumption spending since otherwise total spending would be higher. Interest rates could therefore not have fallen and investment and net exports could not, then, have improved. A tax increase cannot, therefore, promote recovery. What it can do is to change the character of the recovery, moving aggregate spending away from consumption towards the components of expenditure that respond to lower interest rates.

A tax increase lowers interest rates by reducing the demand for money and credit. During a period of slack in the economy it would be far more appropriate to bring interest rates down by increasing the supply of money and credit rather than curtailing its demand. Consequently, as long as unemployment remains high, a more appropriate policy would appear to be an expansionary monetary policy. Critics of this approach argue that such policy would be inflationary. To some extent that is, of course, true; expansionary policies generally do carry with them the risk of more inflation. Reducing the deficit does not carry with it this risk because it is not an expansionary policy.

Restrictive fiscal policy will help to reduce obstacles that are currently impeding interest-sensitive spending. It will, however, have a net restrictive effect on the economy. To make sure that demand is sufficient, combining the restrictive fiscal policy with an expansionary monetary policy should be considered.

Although model simulations are only suggestive, it is instructive to estimate the effects of a change in the policy mix by use of an econometric model of the economy. First, the path of the economy is simulated with unchanged fiscal and monetary policies. This base-line, or control, solution is then compared with the path implied by the changed policies and the differences are observed. A recent study of this sort was

conducted by Roger Brinner using the Data Resources (DRI) model of the economy. 19/

In the DRI baseline, the structural deficit is projected to be \$125 billion in calendar year 1984. It rises to \$191 billion in 1987 and to \$275 billion in 1990. These rising deficits, combined with a recovering economy and only modest monetary growth, produce the expected result of higher interest rates. The Federal Funds rate rises from 8.9 percent in 1984 to 11.2 percent in 1986, while the corporate bond rate rises from 11.2 to 13.4 percent. Further increases in both short and long-term rates are projected for the period 1987-1990.

The fiscal package considered in the simulation uses a combination of tax increases and expenditure reductions that reduce these structural deficits by \$7, \$135, and \$237 billion in 1984, 1987, and 1990 respectively. This is combined with a slightly more rapid rate of monetary growth. The growth of non-borrowed reserves, which is the driving monetary policy variable in the DRI model, is raised by 0.5 percentage points in 1984. It is raised 1.2 percentage points over the baseline in 1985 and 0.8 percent in 1986.

According to the DRI model, these changes would produce highly salutary effects on interest rates. Instead of an upward trajectory, the rates exhibit a declining trend. The Federal Funds rate would drop 0.4 percentage points in 1984, 1.8 percent in 1985 and 3.5 percent in 1986. The corporate bond rate would decline 0.8 percent in 1984, and 2.2 and 3.7 percent in 1985 and 1986 respectively.

The model simulation also suggests that this change in the policy mix, which requires heavy doses of fiscal restraint combined with moderate monetary acceleration, would slow the growth of real GNP between now and 1987, but never by more

19/ Brinner, Roger. The 2-1/2 Percent Solution: The Gains from a Policy Switch, Data Resources U.S. Review, November 1983, p. 1.13-1.22.

than 0.7 percentage points a year. The change in the composition of final demand would be as expected. Nonresidential fixed investment would rise moderately in 1985 and 1986, but then pick up quite sharply for an average annual gain of 5.7 percent in the 1987-90 period. Housing would be tremendously benefitted, gaining as much as 18.2 percent over the baseline by 1987, and net exports also would increase moderately in response to a slightly weaker dollar. These gains would come at the expense of consumption and Federal purchases.

The model simulation suggests that initially there would be virtually no effect on the inflation rate. However, because of greater investment, productivity growth would improve, and there would be, then, significant inflation gains commencing in 1987. For the period 1987-1990 the consumer price index would average 0.6 percent less than in the base-line solution and the deflator for GNP would be 0.2 percent lower.

In summary: The model suggests that the change in the policy mix could produce a number of significant effects. Capital spending, housing, and net exports would increase while the consumption and government shares of GNP would decline. Short and long-term interest rates would decline. Because interest rates would be lower, the dollar would be somewhat weaker. The fall in interest rates and in the value of the dollar help the global economy by easing the LDC debt problem and permitting foreign countries to stimulate their economies. Domestically, manufacturing would expand more rapidly because of the shift in final demand. And inflation would also be reduced because of lower capital costs and stronger productivity growth in the longer run.