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Sustaining the Business Expansion

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*Remarks before the Conference Board's Conference on Management
of Funds in New York City on Wednesday, May 19, 1976*

I am delighted to address this Conference Board session. Those of us who spend our working day concerned with monetary policy obviously share a broad area of interest with those engaged in the daily management of financial funds. We have together passed through troubled times in the 1970's. Yet, I also suspect that, looking back from our different perspectives, most of us can also share a feeling that more recent economic developments have been at least as favorable as we could have dared hope a year ago.

Indeed, it is already hard to recapture the atmosphere of gloom prevailing in the opening months of 1975. To be sure, by last spring, there were signs that the precipitous decline in production might be ending. A rebound in stock prices seemed to suggest that forebodings that the worst of our postwar recessions might turn into genuine depression were receding. But prospects for vigorous recovery were still sharply questioned.

The outlook for financial markets appeared to many to mirror a wider economic dilemma. Despite high unemployment and unused capacity, inflation remained high. If recovery was brisk, what little progress had been made on inflation would be jeopardized and, with it, prospects for sustaining growth. The need for economic stimulus seemed to justify tax cuts and historically large deficits. But the effects of those deficits on financial markets, already sensitized to inflation, were widely feared. In the face of the deficit, there were doubts the Federal Reserve could or would adhere to its expressed intention to keep the monetary aggregates growing at a moderate pace. In these circumstances, the prospects for interest rates seemed less than propitious. Moreover, a near crisis developed in municipal finance, growing out of the deep-

seated troubles of New York City. And attention focused on the banking system, as it coped with the largest loan losses of the postwar period, brought new financial uncertainties.

Yet through it all, the economy in fact performed remarkably well. During the past four quarters, output has expanded by some 7 percent, about equal to the average for the first four quarters of earlier postwar recoveries. Unemployment, while still far too high, has declined significantly, and employment has reached new highs. Significantly, all this has been accomplished while the rate of price increase has declined—only modestly and unevenly but nonetheless in the right direction. A renewed rise in productivity, after a long period of stagnation, assisted that process. Profits have certainly improved. Interest rates, after declining during the recession, have not risen at all a year after recovery began. Some progress has been made toward strengthening the liquidity and capital position of financial and nonfinancial businesses alike, and monetary growth did remain within intended ranges.

What should we make of this experience? Were the concerns expressed a year ago merely premature, or have we indeed turned the corner in bringing the economy under better control? Can we now look forward to sustained expansion?

Quite obviously, only time can provide a full answer to those questions. But they still seem to me worth posing, for the answers will not be independent of the actions we have taken, and must yet take.

We can see now that the severity of the recession of 1974 and 1975 was a reaction not to any one dramatic event, but to a whole series of interrelated developments and attitudes arising over a long period of years of rela-

tive prosperity—attitudes and developments that ultimately could not be sustained. These developments grew in part out of widely held views that, by the 1960's, we had identified ways and means of assuring that serious business downturns were a thing of the past. The conviction spread that, in the last analysis, prosperity could be maintained at the expense of inflation—certainly an evil, but a lesser one.

For a time, events seemed to bear out these views. But, beneath the surface, it was these same attitudes that contributed to economic behavior and trends that, sooner or later, spelled trouble. For instance, as people confidently began anticipating sizable increases in real income year after year, there was a tendency to reach out for more than the economy could in the aggregate provide. The result was not more real income, but inflationary pressure. And, when the large increases in oil and food prices suddenly reduced the real income of the mass of urban workers, the shock could not be absorbed without sharply accelerating the inflationary process.

Meanwhile, there had been a tendency to downgrade the inevitable risks of economic life and to relax accepted rules of economic prudence. In this atmosphere, liquidity and balance-sheet ratios of both financial and nonfinancial institutions were permitted to erode. The process was seldom viewed with alarm; instead, for a time the stock market seemed to reward high leverage and reduced liquidity as measures of financial efficiency and as signals of alert management.

Then, as inflation speeded up under the weight of a worldwide boom and the oil crisis, expectations of inflation began to permeate financial markets and business decision making, and the dangers suddenly became more apparent. A financial squeeze developed, and interest rates reached new highs. As the boom slowed, confidence in the outlook was rapidly dissipated, and financial dislocations aggravated the recession.

It is easy to see, in retrospect, that the seeds of the recession were laid much earlier. But the timing is never obvious. Indeed, the timing and severity of the recession were clearly related to the unpredictable shock of the oil crisis. Given the heavy impact of that and other special factors aggravating the vulnerabilities in the world economy, there is a sense in which we can count ourselves both fortunate and wise in the manner in which we handled the recent recession. Internally, there was a significant risk of contraction feeding upon itself; externally, nations could have been tempted into aggressive, beggar-my-neighbor policies.

Those risks remained just that—risks and not realities. Broadly appropriate monetary and fiscal policies, and a

widespread grasp of the ultimate futility of seeking prosperity at the expense of other nations, deserve much of the credit. Given some of our past history, when long periods of boom ended in prolonged depression, I think we can fairly say we have learned something.

But have we learned enough—not just how to deal with severe recession but how to maintain a balanced expansion, an expansion that could proceed for some time?

I can see some hopeful signs—signs of a shift of attitudes that are partly intangible and admittedly hard to measure but are no less important for that reason. Perhaps ultimately most important, the wide belief that we could maintain prosperity by accepting inflation has rightly been shaken. The evident strains and difficulties of recent years seem to be producing a healthy new respect for economic risk and for the economic limits on what we can achieve.

For evidence, I would point to diverse areas. There are new worries over the size of the Federal budget and over the tendency for deficits to expand beyond plans and expectations, a concern reflected in the new procedures for Congressional decision making on the budget. State and local budgeting practices are being tightened. Both financial and nonfinancial businesses are placing more priority on building capital and balance-sheet strength.

But I must also say the evidence is still ambiguous. As the economy recovers, the old patterns of thought could return. More specifically, in the face of the highest unemployment since the Great Depression, the rise in wage rates in important sectors of the economy marked by large collective bargaining agreements appears to have slowed very little, if at all. Of course, the desire to restore lost purchasing power is readily understandable, as is the eagerness of many businesses to protect and increase profit margins. But understandable as those motivations are, in perpetuating the inflationary process they hamper the growth that in the end can be the only source of real increases in wages and profits.

Obviously, I do not draw from what has happened a pessimistic and fatalistic view that we cannot contain inflation and sustain the recovery. But I am afraid there is nothing inevitable about such a happy outcome. Much will depend upon the choices we make from here on out in a number of important areas, and I want to spell out some of the considerations bearing on these choices.

I have already said enough to suggest that, to my mind, the first and foremost condition for sustaining economic expansion is avoiding a resurgence of upward price and cost pressures. The notion that price stability and economic prosperity are competing goals over any substantial

period of time—an idea inferred from, and given apparent scientific sanction by, the so-called Phillips Curve—seems to me the most pernicious fallacy generated by economic thinking in the postwar period. I don't want to claim that the theories of economists—defunct or otherwise—control all our decision making; we don't need to look to economic theory to be concerned about a bias in political processes toward spending rather than taxation, and toward more money rather than less. But there can be little doubt that the assumption that a little inflation can be traded off against more jobs has influenced macroeconomic demand management at critical junctures. For a period, the trade off seemed to have worked. But the game was up when it came out in the open, and when the implications were widely understood.

Today, markets have a way of anticipating, and reacting to, the price implications of expansionary actions almost as soon as—in some cases even before—those actions can be effectively implemented and affect real economic activity. As money markets and markets for wages, goods, and services react to expectations of inflation, higher prices and interest rates tend to offset the stimulus sought.

As a result, the econometric work that seemed so persuasive earlier in the postwar period no longer fits the facts. In technical terms, the Phillips Curve has become highly unstable. And the recent work of economists has gone a long way toward undermining its theoretical rationale.

I don't know how deeply that lesson has yet sunk in among economic decision makers and commentators generally. But I do think it has already had a strong impact on national policy, for the danger to continuing expansion from a fresh acceleration of inflation, in present circumstances, has become readily apparent.

Rising costs of inventory and plant and equipment directly increase borrowing needs at a time when neither retained earnings nor balance-sheet ratios are as strong as they have been during most of the postwar period. Financial institutions, now in the process of rebuilding their financial strength after the erosion of earlier years, are not in a position to support readily the increase in assets and liabilities that would be generated by a combination of rising activity and accelerating inflation. Governmental bodies—particularly on the state and local level—would be exposed to intense financial pressures, and would need to review spending plans anew. The credit markets would move to anticipate the pressures, and interest rates would rise. And on past patterns the consumer, who has been providing the main driving force for expansion, would likely pull back in an attempt to conserve his financial position.

Now, the simple fact is that—at least through the first quarter of this year—price performance did not deteriorate in the face of recovery; indeed, it has been unexpectedly good. I suspect that single fact helps account for much of the rebuilding of consumer and business confidence that we are seeing. It goes a long way toward explaining the relative stability in interest rates.

In appraising this record, I think we need to recognize there are also strong grounds for believing that the exceptionally good price performance of the early months of this year was simply too good to last. The relatively small advances in the major price indices during the first quarter—summarized in the rise of the GNP deflator at an annual rate of less than 4 percent—were made possible by actual declines in prices of fuel and food. I have no special crystal ball to permit me to foresee the consequences of the next OPEC meeting, or the balance of supply and demand in agricultural markets, but I do have a skepticism that we can count on quite such favorable trends continuing. In other areas, we do know the recent price picture has been less impressive. For instance, consumer prices, apart from food and fuel, have been increasing at an annual rate of 8 percent this year.

Moreover, there have been a number of indications suggesting that, in areas particularly sensitive to cyclical influence, the price picture might actually be deteriorating somewhat. Thus, prices of raw industrial commodities have begun to move up again this year, recovering a significant part of their recession decline. Industrial buyers are now reporting a striking rise in the proportion of sellers quoting higher prices; those reporting price reductions have declined to negligible proportions.

I don't know how far these signs of renewed pressure on sensitive industrial materials prices will go, or how long they will last. But, in and of itself, the stirring is not necessarily surprising or alarming, considering that we have had a full year of recovery from abnormally depressed demand conditions in commodity markets.

The trouble is, of course, that we cannot consider these more cyclical elements in isolation. The firming of sensitive prices is superimposed on a more basic, underlying upward trend in the price level. I do not find it at all comforting to think that we may be coming out of the worst postwar recession with what I would term the “base rate” of inflation running at perhaps 6 percent a year or even a little more. By base rate, I mean that rate of inflation that appears to be implied by recent trends in wages and other continuing cost elements, after allowing for normal productivity growth.

The striking improvement in recorded price trends since the peak rates of 1974—when we saw increases of

12 percent for consumer prices and 25 to 30 percent for industrial wholesale prices—reflects in substantial part the removal of a host of special factors that were then operating to push prices sharply higher: the crop shortfall, the rise in oil prices, the effects on the internal price level caused by the depreciation of the dollar, and perhaps some “catch-up” effects after the ending of wage and price controls.

In that earlier period, those more or less special factors, in combination with strong worldwide demand pressures pressing on capacity, could be held responsible for inflation. Wage rates lagged, and so did the real income of most workers. Indeed, in real terms, the wages of the average urban worker sooner or later had to decline in the face of sharply higher prices of food, fuel, other materials, and imported goods.

Now the situation is quite different. The special factors have subsided. Capacity is ample for present demand. Productivity is growing again and, with it, the opportunity for renewed growth in real wages, as well as profits. But aggressive efforts to recover past losses in real income, as they affect costs, threaten to prolong a substantial rate of price increase, even before allowance for more cyclical factors.

I am not suggesting that we face any imminent threat of repeating the extreme price developments of 1973 and 1974—not unless the extraordinary external forces of that period were to be repeated, or the monetary and fiscal authorities were to lose all sense of prudence. What I am suggesting is that prospects for maintaining the business advance—an advance that today has considerable momentum—through 1977 and beyond is critically dependent on our ability to nourish and sustain the returning confidence. That, in turn, rests on our ability to come to grips with the stubborn forces that underlie the continuing inflation.

I cannot set down a scenario for public policy that will *guarantee* success in that effort. Indeed, success or failure will turn on private attitudes and policies as well as on the large decisions of monetary and fiscal policy. Nevertheless, some broad elements in a successful strategy for public policy—and particularly monetary policy—seem to me reasonably clear.

In approaching that issue, it is worth emphasizing some questions surrounding private investment activity—an area often considered particularly sensitive to monetary policy. That is also an area which, not atypically, lagged substantially in the early stages of recovery. In real terms, activity in a few industries appears to have picked up since late 1975, but many businesses still appear hesitant in undertaking new commitments.

Any prolonged sluggishness of investment activity, following the decline during the recession, would seem to me unfortunate, not just in terms of the longer term potential for growth, but in terms of the prospects for maintaining a solid recovery over the next few years. It was not so long ago—in 1973 and 1974—when we experienced rather widespread shortages, even while unemployment was still at unsatisfactory levels. Since then, we have of course added some capacity, and only now is real activity reaching earlier peaks. As a result, we appear to have some leeway for expansion. A similar situation prevails in other industrialized countries.

Nevertheless, in shaping our policies, we must be concerned not only with the situation today, but with what could develop in 1977 and 1978, for the lead times on investment are long, and there are lags in responses to policy actions. Specifically, we need to appraise the danger that some important sectors of the economy might again press against the limits of productive capacity well before the available work force can be fully absorbed. The result could be to produce price pressures that might be loosely classified as “demand pull”, even when, in a broader perspective, the economy is still operating at clearly unsatisfactory levels of employment and with excess capacity in other lines of activity.

Now, I would quickly admit that judgments in this area are difficult. I do not find notions of “potential GNP”, essentially based on trend line calculations of the productive potential of our labor force, very helpful in this context. The changing composition of the work force over the past decade—with more inexperienced teenagers and women in the job market—has itself raised questions about some of the older rules of thumb. More important in the immediate situation, those calculations do not purport to take account of plant capacity.

There are, of course, some statistical calculations of the current relationships between capacity and output. But they are not fully enlightening, for they do not agree. In the first quarter of this year, the various widely cited measures of industrial-capacity utilization ranged from about 72 percent to about 84 percent. And the various series show quite different movements over time, from the peak to trough of the business cycle, and from the past through to the present, casting further doubt on their reliability. Apart from the uncertainty in these calculations for manufacturing as a whole, we know that capacity in one industry (or in one part of an industry) often cannot be substituted in another. With the structure of demand always shifting, bottlenecks can develop in particular areas well before aggregate measures of capacity utilization suggest strains should appear. Amid these statistical and

conceptual uncertainties, we can hardly be oblivious to the warnings of some businessmen who have foreseen capacity pressures in particular industries developing next year, assuming demand continues to grow.

The fact that investment activity has been relatively slow to participate in the expansion is perhaps not surprising in the light of the severity of the recession, the relatively poor profit performance of American industry over a period of years, and the strains on financial positions. Nevertheless, the early *pattern* of expansion—with consumption so relatively strong and investment so relatively weak—had disturbing implications for our longer run ability to deal with inflation and to sustain the expansion. Indeed, the environmental requirements that face business today mean that a larger proportion of the capital spending that is taking place may be less effective—per dollar spent—in adding to capacity or efficiency than in the past.

We can see in this immediate situation a reflection of some of the concerns that have been expressed about a growing “capital shortage” in the United States. In a long perspective, I confess I find that concept somewhat elusive. Much of the concern has been focused on the possibility of a shortfall in aggregate savings. My own inclination is to view the problem more from the other side of the equation—have we, largely inadvertently, impaired *incentives* for capital formation so that we don't use with maximum effectiveness savings that can be generated?

In that connection, I believe we could usefully direct much more attention to our methods of taxation, and particularly the way we tax corporate profits in this country. In particular, it seems to me ironic that this nation—rightfully viewed as a bastion of the free enterprise system—has been among the slowest of the industrialized nations to achieve some integration of the personal and corporate income taxes, thus ending or alleviating the present practice of taxing the return on equity capital twice.

But tax reform is not a speedy process. Nor can we prudently attack the investment problem by simply pumping more money into the market in amounts substantially in excess of longer range needs.

I have already alluded to the relative stability of interest rates through the first year of recovery. This period has also seen major increases in some of the broader measures of liquid assets. These developments have been reflected in some improvement in the liquidity of financial institutions, have facilitated considerable funding of short-term debt assumed earlier by businesses, and have thus promoted a more favorable climate for capital spending and for economic expansion generally. With the cyclical improvement in profits and the broad increase in demand providing stronger motivation for investment, the clear

signs of stirring activity in that area are not surprising, and they are welcome.

But there are clearly limits to the extent that that process can be promoted by the expansion of money and credit. That process would be self-defeating if prudent limits are exceeded, reawakening inflationary fears and pressures and eventually provoking increased interest rates, rather than holding them down. I would remind you, too, of the long time period from investment *decision* to investment *in place*; the favorable consequences of plant and equipment spending for capacity lag substantially the consequences for demand.

I can wish we had more capacity in place sooner, thus providing a greater measure of protection against demand pressures down the road. But policy needs to be based on realities and probabilities, not wishes. In these circumstances, wisdom dictates the need for maintaining, through the monetary and fiscal tools at our disposal, a climate for moderate growth in demand. The alternative of a quick dash for “full employment” at the expense of renewed inflation would jeopardize the chances for *sustaining* expansion over a lengthy period, and for maintaining a healthy climate for investment as well.

It is this approach that has characterized, and continues to characterize, monetary policy. I do not want to wade into a lengthy discussion of all the technical aspects of targets for monetary aggregates—just how they should be set, how important they should be regarded relative to other considerations, or just what their numerical values should be. But I do think that the broad strategy embodied in those targets should be clear.

In publicly announcing a range for the various monetary indicators, the Federal Reserve has attempted to underline clearly two points. One is that there are upper bounds to the amount of monetary expansion that can be set without risking—and promoting—a resurgence of inflationary pressure. At the same time, the targets have been set at a level that recognizes that the strong inflationary momentum that has developed over a period of years cannot be squeezed out of the economy abruptly, without damage to the recovery process. Consequently, the targets have been set above levels that, in the near term, are consistent with price stability.

The corollary of this approach is that over time restoration of price stability will require a gradual reduction in the average rate of money growth from recent experience and current targets. As a step in that direction, Chairman Burns announced earlier this month a slight reduction in the upper ends of the range of some of our longer term monetary-growth targets. These small reductions also reflect the fact that the economy has been showing a very

satisfactory recovery without overly rapid growth in M_1 or M_2 ; indeed, the growth in M_1 has been quite modest over most of the past year.

I suspect that many of you are in as good a position as I to judge whether we can adhere to these targets without a pronounced rise in interest rates. Over time, that will depend on such factors as the rapidity of economic growth, the strength of wage and other cost pressures, and progress in reducing the budgetary deficit. I would note, in that connection, that the widespread forebodings a year ago were not borne out; interest rates at times did rise for awhile, but the rises were subsequently reversed. I recognize that the fact that interest rates changed very little on balance over the first full year of recovery was unusual in the light of past experience. We cannot count on such a pattern continuing indefinitely—nor would some cyclical rise in short-term interest rates be disturbing. In a context of orderly advance and diminishing inflation expectations, such cyclical increases in money market rates need not have a pronounced effect on long-term rates.

My greater concern by far would be a situation in which interest rates moved higher in response to a renewed burst of inflation, both through its effects on the demands for credit and on expectations. Over time, prospects for lower interest rates remain inextricably tied to prospects for squeezing out the inflation premium still built into the existing rate structure.

The speed with which we can achieve that happy result will depend, in my judgment, as much upon the prudence and responsibility of private conduct as on monetary and fiscal policy. Those instruments can create a certain climate and financial environment indispensable to success. But they will not reconcile the need to work toward stability as we sustain expansion if more or less autonomous cost pressures are strong. In particular, there are some conspicuous wage negotiations and pricing decisions in our economy that, at least in the short run, are by no means rigidly determined by prevailing economic and financial conditions, and whose very size and visibility make them something of an independent force on the cost structure of the economy. In the past year or more, some signs have developed that, while the rise in money wages has slowed

to some extent—as it must if costs and prices are to level out—that trend has been strongly resisted in more heavily organized sectors of industry. It is not likely that those patterns will diverge for long—but much is at stake in how the gap is closed.

In the end, *real* wages and *real* profits can increase only out of productivity gains for the economy as a whole—and all experience shows those gains are likely to be greatest during a period of sustained, orderly business expansion. To the extent wage and other cost pressures—passed quickly into the price structure—jeopardize that prospect, they hardly serve the interest of labor or business as a whole, whatever the short-run advantage may appear to be.

In sum, there is much that is happening that supports confidence in the future. The harsh lessons of the 1970's have put into motion needed changes in attitudes and practice. Those changes are reflected in both private practices and public policies.

But the returns are not all in. The lessons can be forgotten in the flush of returning prosperity. The rate of price increases remains unacceptably high—and the expansion that is proceeding so nicely now remains vulnerable to a resurgence of inflationary expectations.

The risk is not simply, or only, that we would lapse into another recession before we have fully restored prosperity, painful as that would be. In those circumstances, strong voices from many sides would, with some apparent justice, press for far-reaching changes in the way we manage and control our economy. And I suspect we could find ourselves heavily pressed to sort out constructive change from changes that, in fundamental ways, would damage the market system that is so much a part of our political, as well as economic, heritage.

Much hangs in the balance as we appraise the prospects for sustaining the expansion that seems so promising now. The particular financial issues and questions you are exploring today are a big element in the broader prospects. Monetary policy, in particular, can be effective only as it works through the market process. As we move ahead, we will need the benefit of your understanding and your judgments in shaping that policy, just as I hope you will understand our own intentions and share our purposes.

The Business Situation

The recent business figures point to a continuation of the economic advance, though some indicators suggest some slowing from the exceptionally strong first-quarter rate of increase. The first-quarter gain in real gross national product (GNP) is now estimated at an 8.5 percent annual rate, 1 percentage point higher than indicated in the initial report. In April, industrial production showed another sizable gain, and total employment rose substantially in both April and May, bringing the overall unemployment rate down to 7.3 percent. In the consumer area, however, retail sales apparently flattened in April after large earlier gains and auto sales edged back a bit in May. Somewhat inexplicably, some reports also suggested a setback in consumer confidence this spring after major earlier improvements. Housing starts and permits also declined in April, indicating an interruption, however brief, in the revival in housing which most analysts expect to resume over the balance of the year. In the capital spending area, the new spring Government survey suggested only a slightly more vigorous rise than was indicated last winter and left somewhat uncertain the amount of expansion that could be expected in real terms this year. Thus, on balance, the recent business news has been somewhat more mixed than in the first quarter, when the gains posted were so sizable and so nearly universal that doubts began to be expressed as to whether the expansion would continue on the generally moderate and reasonably well-balanced course it had followed through most of its first year.

The news on the inflation front has continued to be generally favorable. To be sure, farm and food prices rebounded in April after several months of decline. Prices of nonfood commodities, however, continued to rise only moderately at both the wholesale and the retail levels. In May, wholesale prices of industrial commodities were virtually unchanged. During the past six months, these prices have risen at an annual rate of barely 3½ percent, and retail prices of nonfood commodities rose at the same rate over the six months ended in April. Somewhat more rapid price increases could well occur in coming months, however, since posted increases in the prices of a number of basic commodities have yet to take effect. In addition, unit

labor costs have been held down by the combination of cyclical improvements in productivity and relatively moderate wage increases. For example, during the six months ended in May, average hourly earnings of production and nonsupervisory workers, adjusted for the effects of inter-industry shifts of employment and of overtime in manufacturing, rose at an annual rate of only 6 percent. The bulk of this year's relatively heavy calendar of collective bargaining settlements still lies ahead, and somewhat larger overall wage increases would not be surprising. On balance, however, recent and prospective developments give little indication of a change in the underlying rate of inflation, which appears to be running in the neighborhood of 6 percent.

INDUSTRIAL PRODUCTION, ORDERS, AND INVENTORIES

The Federal Reserve Board's index of industrial production—which measures the physical volume of output of the nation's factories, mines, and utilities—rose 0.7 percent in April. At the same time, upward revisions were made in the estimates for industrial output for the two preceding months. Since its low point in April 1975, the index has advanced 11.5 percent, recovering nearly three quarters of the ground it had lost during the recession. In recoveries from previous postwar recessions, industrial production advanced about 16 percent on average in the twelve months after the trough, somewhat faster than the current experience. Moreover, in these previous upturns, industrial output had typically exceeded its previous peak value after twelve months of recovery while real GNP usually exceeded its previous peak within three quarters after its trough. By these standards, the current recovery, although brisk, is by no means extraordinarily rapid.

Although output expanded in most industrial sectors in the past year, the rate of gain has not been uniform. Manufacturers of nondurable goods have increased their rate of production fairly steadily since the recession trough, providing major strength to the recovery. In contrast, the pattern in durables industries has been

more uneven. Early in the recovery and again in more recent months, auto production provided a major impetus to the upturn in economic activity (see Chart I). Although auto sales are typically quite responsive to the general state of the economy, the recent fluctuations have been unusually large. Between March 1973 and April 1975, the peak and trough of the latest automobile cycle, sales of domestic-model cars dropped 46 percent whereas, on average, auto sales declined only 30 percent in other postwar downturns. Recalling that gasoline prices have risen substantially since the end of 1973, it is not surprising that auto sales suffered more than would usually be expected in an economic downturn. The change in energy prices also opened the possibility of a marked shift in life-styles, and earlier in the recovery it was unclear whether auto demand in particular would return to previous levels when real incomes had fully rebounded. However, sales have recovered not only much of their lost ground but also much of their former pattern, with demand concentrated in larger size models.

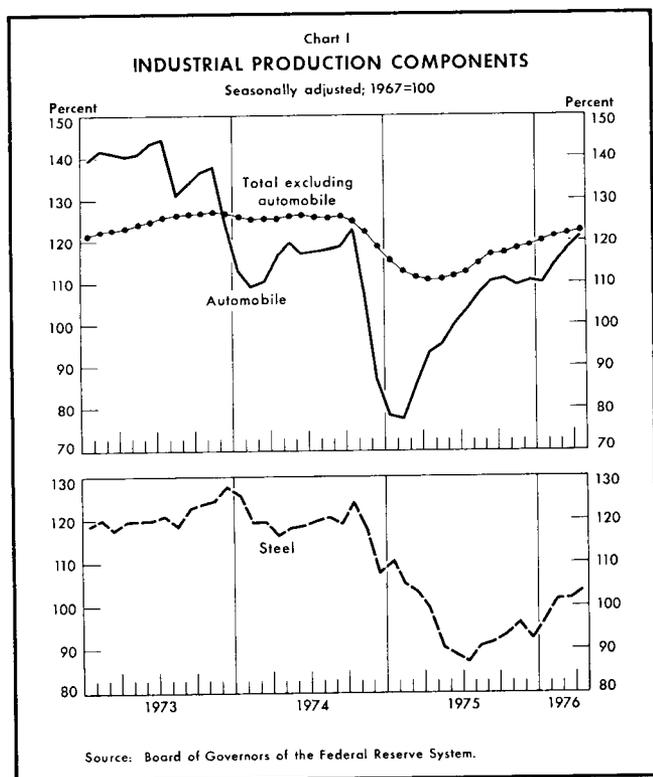
In April, new car purchases occurred at a 9 million unit annual rate, nearly 60 percent above the level of one

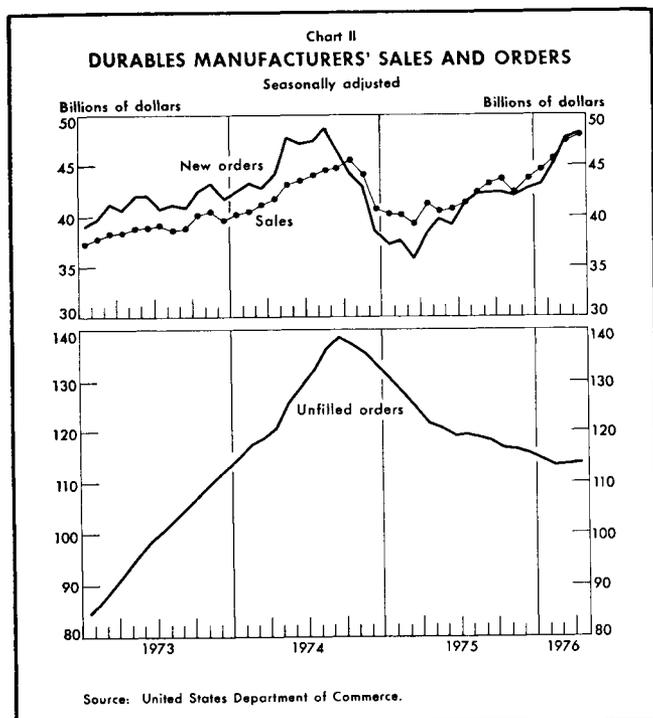
year earlier. The latest data indicate that sales slowed to an 8.5 million unit annual rate in May. The recent pace of demand resulted in lower than normal inventories of many models and, to rebuild stocks, automakers expanded production for the fourth straight month, bringing auto assemblies to an 8.7 million unit rate in May.

The rapid increase in auto production since the beginning of 1976 has been an important factor in the rising demand for steel. Output in the steel industry rose by 14.5 percent during the first five months of the year. Steel industry sources report that the quick pace of the increase has brought scattered signs of temporary shortages, although overall capacity appears adequate to meet demand. Steel price increases, announced in May and June for various product lines and effective about one month after the announcement date, may have induced metal purchasers to place orders while they could still benefit from the lower prices. If so, the data on new orders for this industry may show a bulge in May and June and a fall-off during the remainder of the summer.

Output of business equipment has also risen at a fair pace in recent months. During April, production in this sector advanced at an annual rate of nearly 10 percent and reached a level of 7.1 percent above its recent low point. Business equipment production troughed in July 1975, later than overall industrial output, and its rebound began quite slowly. It is common for the production of business equipment to lag other measures of economic activity because the existence of excess productive capacity tends to discourage the purchase of new equipment. The resurgence of demand for new capital goods depends in part on the rapidity with which the general recovery reduces excess capacity. The rebound in output of business equipment has been somewhat less robust than the postwar average, reflecting the depth of the last recession.

The outlook for further production gains, particularly in the business equipment sector, continues to improve. New orders for durable goods on a seasonally adjusted basis rose in April for the fifth consecutive month (see Chart II), led by a surge in orders for machinery. Manufacturers of other types of nondefense capital goods also experienced sizable increases in bookings. Apparently, in the capital-goods-producing sectors, manufacturers have been filling these orders rapidly and there has been no buildup in the backlog of unfilled orders. This may reflect the extent of idle capacity in the business capital goods sector. In contrast, primary metals and transportation equipment manufacturers did find that their order backlogs increased in both March and April. The steel and auto industries, which are part of these two respective sectors, experienced sizable improvements in demand





earlier in the recovery and are probably operating closer to capacity than are capital goods manufacturing firms. Overall, the backlog of unfilled orders for durable goods edged higher for the second month in a row, after declining for most of the period since September 1974.

The increases in orders for capital goods are consistent with the steady upgrading of capital spending plans shown in successive surveys by the Department of Commerce. According to the April-May survey of plant and equipment expenditure plans, nonagricultural businesses anticipate spending 7.3 percent more in 1976 than in 1975, up almost 2 percentage points from the December survey. Even with these latest upward revisions, however, the plans reported in this survey indicate a cautious attitude toward new investments in plant and equipment. While the latest data on capital appropriations by 1,000 large manufacturing firms showed some declines from the last quarter of 1975 to the first quarter of 1976, the backlog of appropriations remains quite high. Consequently, further improvements in business confidence could well lead to increases in the rate of capital spending with little delay.

Although business spending on plant and equipment has been fairly slow to respond to the upturn, business investment in inventories moved up sharply in the early

months of 1976. Inventory stocks had been sharply reduced during 1975. Now, with sales and output up strongly, business firms need larger stockpiles to facilitate production and trade. In March, the book value of manufacturing and trade inventories increased \$1½ billion, marking the third consecutive month of substantial increase. A large fraction of the rise was accounted for by durable goods manufacturers and retailers who have just lately begun to rebuild their inventories. However, the available data for April, which cover just manufacturing firms, show only a small increase in total inventories, as materials and supplies inventories declined. Work-in-progress inventories, which have only recently begun to rise, continued upward in April. Work-in-progress inventories are commonly large relative to shipments in the capital goods sector, where the duration of the production process is longest. Another factor tending to create work-in-progress inventories is the occurrence of bottlenecks and long delivery lags, which can cause interruptions in the production of goods with rather short production processes. Although purchasing agents have reported some lengthening of delivery lags, apparently there have been few serious problems. Overall, the outlook for further planned inventory increases is favorable. With inventories at comfortable levels relative to sales, both the durables and the nondurables sectors will require additional stocks of inventories as sales expand.

On balance, the outlook for additional gains in economic activity is good. The Commerce Department's composite index of leading indicators rose strongly in April, extending the uptrend that began in March 1975, the tentative trough month. [See "Evaluating the Leading Indicators" in this issue for a discussion of the lead time of this composite index.] This suggests that further expansion in economic activity is in the offing. The April gain of 1.1 percent reflected a sharp rise in the money supply component, although five other components also rose while four components declined. The average workweek of production workers, usually included, was excluded from the April composite index because the coincidence of holidays in the survey week caused the measured workweek to understate typical workweek length.

PERSONAL INCOME, RETAIL SALES, AND RESIDENTIAL CONSTRUCTION

Personal income rose \$11.6 billion in April, about equal to the average monthly increase during the first quarter. Wage and salary disbursements accounted for a substantial part of the April increase, growing at an 8.4 percent annual rate during the month, but most other

components also advanced strongly. There is some indication that wage and salary disbursements might have been even higher had not the week of the Bureau of Labor Statistics payroll survey been one in which both Passover and Good Friday occurred. The average workweek was lower because of these holidays, and the usual seasonal factor does not adequately correct when these two holidays occur in the same week. Although a major part of the recent gain in personal income has been attributable to the growth of payroll employment, other components of personal income that are more sensitive to economic activity are beginning to show signs of improvement. For example, dividend payments rose at a 22 percent annual rate.

The improvement in incomes has been reflected in sizable increases in consumer purchases in the past year. Between April 1975 and April 1976, retail sales grew by 13.8 percent. Even allowing for price rises, this is a substantial increase. Typically, in the twelve months after a business-cycle trough, retail sales expressed in constant dollars increase about 8 percent, whereas in the current upturn the volume of sales has risen 10½ percent (see Chart III). The latest data, however, indicate some moderation in consumer buying. According to the advance report, retail sales for April were virtually unchanged at \$53.3 billion which, adjusted for price increases, repre-

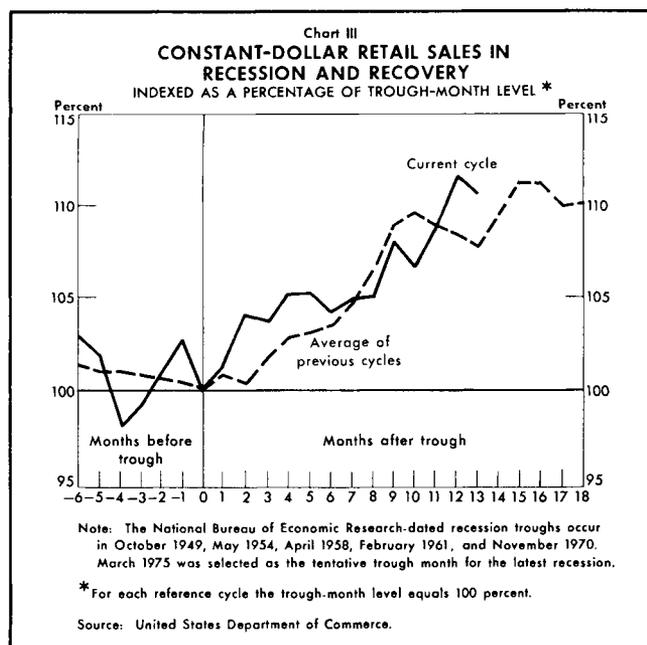
sents a decline in the physical volume of sales. In addition, early reports on weekly retail trade during May suggest that sales were slow until the final week, due in part to unseasonably cool weather in the Northeast.

The most recent data on activity in the housing sector have also been somewhat disappointing. Total private housing starts declined a bit in April. With consumer incomes strong and consumer sentiment much improved earlier in the year, analysts had expected continued gains in residential construction activity. There have been significant gains in single-family housing starts in every quarter since the spring of 1975. In the March-April period, single-family starts averaged 1.1 million, up 43 percent from the level of the corresponding two-month period in 1975. Multifamily starts, however, after rebounding strongly in the last half of 1975, have declined somewhat since then. In the last quarter of 1975 multifamily starts were 53 percent above the March-April 1975 level, but by March-April 1976 they had receded to 42 percent above the year-ago level. There are, however, some signs that the multifamily picture may improve. For example, the rental vacancy rate fell 0.8 percentage point to 5.5 percent from the second quarter of 1975 to the first quarter of 1976. In addition, the outlook for both single and multifamily housing starts is aided by the highly liquid position of the thrift institutions, which have been experiencing large deposit inflows.

LABOR MARKET

Conditions in the labor market have improved dramatically over the past half year. According to the household survey conducted by the Bureau of Labor Statistics, employment rose by 2.5 million persons between November 1975 and May 1976. There have been substantial gains in payroll employment in virtually every sector over this period, but the greatest expansion has occurred in manufacturing, trade, and services. In May the unemployment rate declined an additional 0.2 percentage point to 7.3 percent of the civilian labor force; since November the rate has dropped 1.2 percentage points.

There has been a steady decline in the number of persons reporting extended unemployment. Those reporting fifteen or more weeks of unemployment comprised less than 2.2 percent of the civilian labor force in the April-May period, compared with 2.7 percent in the first quarter of 1976 and 3.1 percent in the last quarter of 1975. Additional insight on the improved labor market conditions can be gained from the data on labor turnover in the manufacturing sector. The rate of new hires has accelerated in the past few months and averaged 2.8 new hires



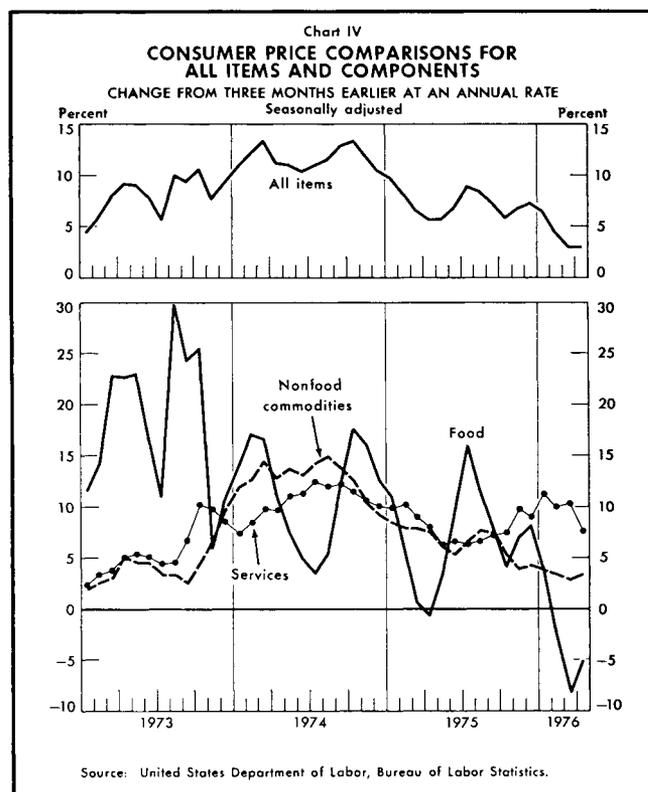
per 100 employees in the March-April period, compared with 2.4 new hires per 100 employees in December-January when employment gains were achieved more extensively by the recall of laid-off workers. Moreover, the quit rate—the fraction of employees who voluntarily decide to terminate employment—has risen by one sixth in this interval. The quit rate tends to increase when employees believe there are good job opportunities available.

PRICES

Although there has been a substantial moderation in the trend rate of inflation during the past eighteen months, movements about this trend at both the wholesale and the retail levels have reflected large swings in farm prices. For example, in the final months of 1975 and the early months of 1976, farm prices were declining and this led to a reduction in the rate of increase in both the wholesale and the consumer price indexes. The situation has now been reversed, as farm and food prices have begun to climb.

At the consumer level, food prices rose in April for the first time in four months, though they are still below the level of December 1975. Most of the recent declines in food costs will probably be reversed in the course of the year. In fact, the Department of Agriculture has said that it expects food prices to rise between 2 percent and 5 percent in 1976. Of course, the actual outcome will depend on the uncertainties of weather both here and abroad. Nevertheless, even food price increases at the high end of the range would represent the smallest rate of increase in four years. Other components of the consumer price index have shown less dramatic movements over the previous year (see Chart IV). The inflation rate for nonfood commodities has moderated over the past year and a half, but part of the deceleration in early 1976 reflected energy price decreases. The recently announced increases in gasoline prices, which are not reflected in the April data, may alter this downtrend. Prices of services have accelerated during the past year, but the rate of increase moderated in April. Overall, few observers expect an early return to the 2-3 percent inflation rate that was seen in several early months of 1976, when food prices fell. On the other hand, few expect a return to double-digit inflation rates even if food prices rise over the year.

At the wholesale level, the prices of farm products and feeds also began to rise in April. This uptrend continued in May, bringing the farm products and processed foods index back nearly to its December 1975 level. Prices of industrial commodities increased by less than 0.1 percent



in May, sustaining the improvement seen in the earlier months of 1976. On average, industrial prices have risen at a 2.8 percent annual rate since last December, down substantially from the 9.2 percent annual rate of increase in the second half of 1975.

One constructive element in the price picture has been the behavior of wages, which constitute a major component of the costs of production. Average hourly earnings of production and nonsupervisory employees in the non-farm sector, adjusted to exclude the effects of interindustry shifts of employment and of overtime in manufacturing, rose at an annual rate of 6.1 percent during the six months ended in May. This was markedly lower than the 8.7 percent annual rate of increase averaged during the 1974-75 period. The moderation of wage increases in recent months has been facilitated by a relatively light collective bargaining calendar. In view of the sizable number of workers involved in new contracts yet to be negotiated during the remainder of the year, it would not be surprising to see some pickup in the rate of wage increase in coming months. Nevertheless, it appears unlikely that a major acceleration of wages will emerge in the near future.

The Money and Bond Markets in May

Interest rates in the money and bond markets rose further in May. The increases in rates on short-term money market instruments reflected firmer conditions in the market for Federal funds, as the Federal Reserve became somewhat less accommodative in its approach to supplying reserves. The Federal funds rate averaged 5.29 percent in May, up about $\frac{1}{2}$ percentage point from April's average, and other short-term interest rates rose by similar amounts. In the bond market, yields also adjusted upward, bringing long-term rates to the highest levels this year.

The Treasury completed its quarterly refunding operation early in May and borrowed an additional \$750 million in a note sale later in the month. In the corporate and municipal bond markets, new issue activity was heavy but some planned financings were postponed as borrowing costs rose sharply.

Preliminary data indicate that the money stock expanded more moderately in May than in April, although the pace was still substantial. Business loan demand remained weak through the statement week ended May 26, however, and banks continued to allow the volume of outstanding negotiable certificates of deposit (CDs) to decrease over the month. As a result, the bank credit proxy—total member bank deposits subject to reserve requirements plus certain nondeposit sources of funds—declined over the month despite the strength of deposit growth.

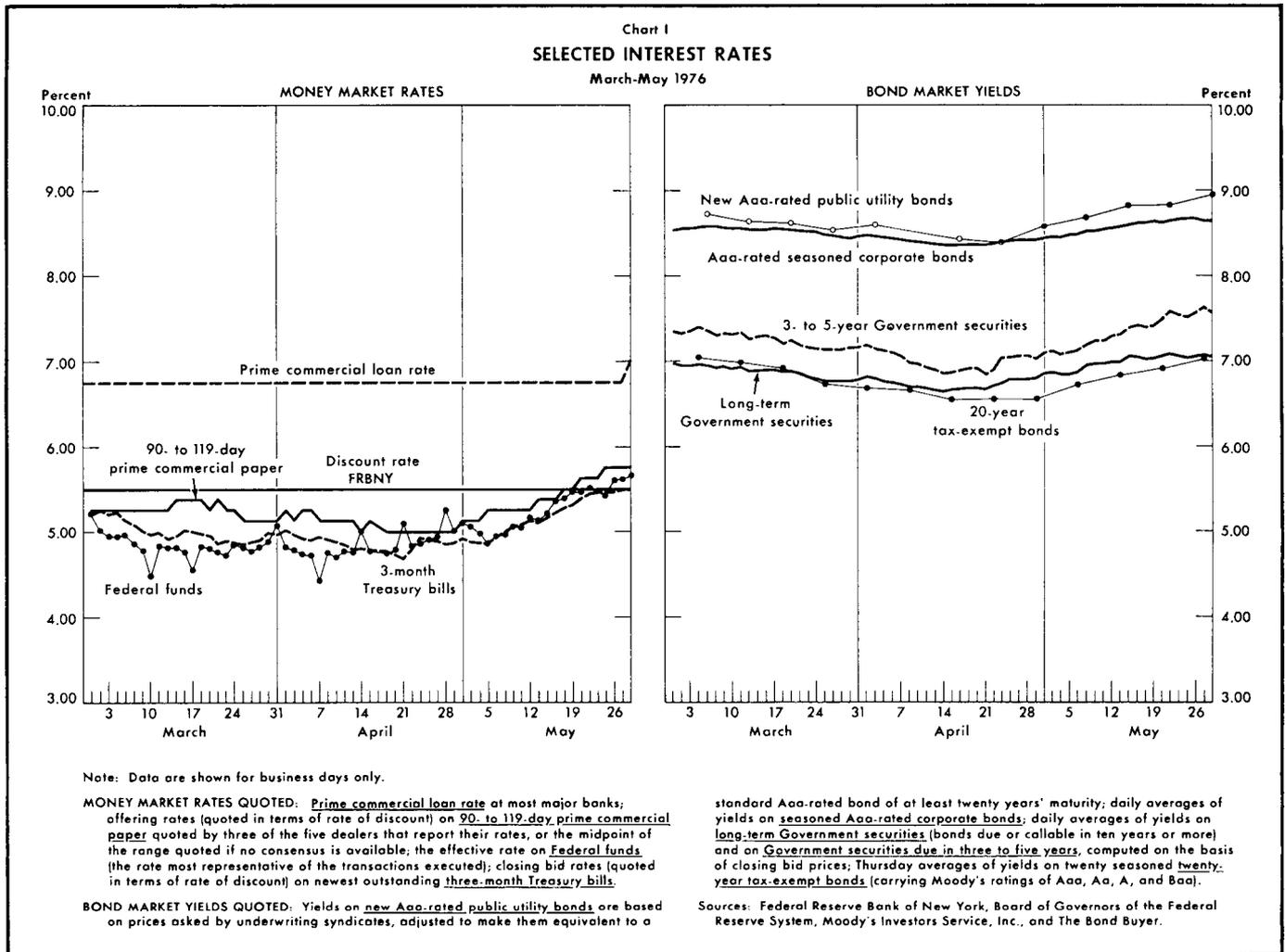
THE MONEY MARKET AND THE MONETARY AGGREGATES

Interest rates on money market instruments rose substantially in May, reflecting firmer conditions in the Federal funds market. The effective rate on Federal funds averaged 5.50 percent in the statement week ended May 26 (see Chart I), compared with a 4.93 percent average in the last week of April. By the end of May, yields on 90- to 119-day commercial paper were up 63 basis points to 5.75 percent, while rates on 90-day bankers' acceptances rose by 82 basis points over the month to close at 5.90 percent. The average yield on 90-day CDs in the

secondary market ended the month at 5.88 percent, up 75 basis points from the average rate at the end of April. These interest rate increases placed some pressure on banks to raise their lending rates to prime customers, and at the end of the month most large banks raised their rates to 7 percent despite the continued weakness in business loan demand. With Federal funds trading near the discount rate, member banks increased their average borrowings at Federal Reserve Banks to \$86 million (see Table I).

In line with the pattern observed throughout the current recovery period, the demand for business loans was again weak in May. Commercial and industrial loans at all weekly reporting banks, including loans sold to affiliates, fell by \$1 billion over the four statement weeks ended May 26. These declines totaled \$10.6 billion over the 52-week period ended then, despite the gradual increase in business inventories which are typically financed by bank loans. The declines in loans have not been offset by increases in the amount of commercial paper outstanding, which suggests that inventory accumulation has been financed largely by internal corporate funds.

Estimates of the monetary aggregates (which reflect the recent quarterly revisions) indicate that they grew fairly rapidly in May although considerably slower than they did in April. During the four-week period ended May 26, seasonally adjusted M_1 —private demand deposits adjusted plus currency outside commercial banks—increased at an annual rate of 9.2 percent over its four-week average in the period ended thirteen weeks earlier (see Chart II). This increase brought the four-week average level of M_1 to 5.5 percent over its four-week average level in the period ended 52-weeks earlier. M_2 — M_1 plus commercial bank time and savings deposits other than large negotiable CDs—grew at an annual rate of 11.2 percent over its four-week average ended thirteen weeks earlier and at 10.0 percent over its four-week average ended 52-weeks earlier. Long-run target ranges specified at the April 20 meeting of the FOMC called for growth in M_1 between $4\frac{1}{2}$ and 7 percent and growth in M_2 between $7\frac{1}{2}$ and 10 percent at an annual rate. The decline in



CDs of \$3.3 billion over the month held the rate of growth in the bank credit proxy to only 3.0 percent over its average level of a year ago.

THE GOVERNMENT SECURITIES MARKET

Yields on United States Treasury securities increased in May, reflecting the firmer money market conditions and competition from a substantial volume of new corporate and municipal issues. After modest declines early in May, just prior to the Treasury's refunding operation, yields quickly advanced to new highs for the year.

The Treasury financing in early May, consisting of new two- and ten-year notes and 23 $\frac{3}{4}$ -year bonds, was

well received by investors. In response, the Treasury issued \$1.2 billion more than the initially scheduled \$3.5 billion of the 7 $\frac{7}{8}$ percent ten-year notes. The yield to maturity on the \$750 million bond issue averaged 8.19 percent, while \$2.0 billion of two-year notes yielded 6.61 percent. The extent of general yield increases over the course of the month can be seen by comparing the yield on the two-year note issued on May 19 with the two-year note issue described above. The \$2.25 billion issue of two-year notes on May 19, which included \$750 million of new cash borrowing, was placed at an average interest cost of 7.16 percent, 55 basis points above the earlier issue.

Treasury bill rates reflected the considerable firming in the money markets. In the last May auction (advanced

to May 28 because of the Memorial Day holiday), average issuing rates on three- and six-month bills, respectively, were 67 and 72 basis points higher than at the last auction in April. The auction of 52-week bills on May 26 resulted in an average issuing yield of over $\frac{5}{8}$ percentage point higher than in the April auction (see Table II). Rates on most bill issues ended May about 30 to 80 basis points above levels at the end of the previous month.

New Federally sponsored agency issues were well received during the month. On May 5 the Federal Home Loan Banks offered only \$300 million of $7\frac{3}{4}$ percent consolidated eight-year bonds, although \$900 million of securities was maturing. This was a continuation of the tendency toward debt retirement by housing agencies, reflecting the highly liquid positions of thrift institutions in recent months. As a result of the reduced supply of agency issues, spreads between agency and Government securities yields remained narrow by historical standards. On May 13, the Federal Intermediate Credit Banks (FICB) and the Banks for Cooperatives (BC) placed nearly \$1.4 billion of short-term bonds but raised only \$88 million in new cash. The \$946 million nine-month FICB offering was priced at par to yield $6\frac{1}{4}$ percent, and the six-month BC issue returned 5.80 percent on nearly \$411 million. The $7\frac{1}{4}$ percent and $7\frac{1}{2}$ percent mortgage-backed securities of the Government National Mortgage Association continued to be popular with investors, and a substantial quantity of thirty-year modified pass-through securities was placed quickly on May 13. In this offering, \$147.8 million of the $7\frac{1}{4}$ percent bonds and \$195.5 million of the $7\frac{1}{2}$ percent securities were priced to yield an 8.46 percent annual return, paid monthly; the equivalent corporate bond yield would be 8.61 percent.

OTHER SECURITIES MARKETS

Yields moved sharply higher in the corporate and municipal bond markets, as large supplies of new issues came to market and participants apparently revised their expectations substantially. Accordingly, considerably higher yields became available on seasoned issues. As the yields required for successful distribution of new issues rose, some borrowers postponed planned financings. Nevertheless, underwriting syndicates placed a sizable volume of medium-quality fixed-income obligations, indicating further relaxation of previous insistence by investors on prime-quality debt.

The increase in bond yields was exemplified by three new Aa-rated electric utility issues with thirty-year maturities. A \$45 million offering was distributed at the end of April with a yield of 8.70 percent. Early in May,

Table I
FACTORS TENDING TO INCREASE OR DECREASE
MEMBER BANK RESERVES, MAY 1976
In millions of dollars; (+) denotes increase
and (-) decrease in excess reserves

Factors	Changes in daily averages— week ended				Net changes
	May 5	May 12	May 19	May 26	
"Market" factors					
Member bank required reserves	- 563	+1,063	- 141	+ 381	+ 740
Operating transactions (subtotal)	-1,768	+2,517	- 791	-2,204	-2,246
Federal Reserve float	+ 205	- 78	- 15	- 495	- 383
Treasury operations*	-2,043	+2,490	- 40	-1,542	-1,135
Gold and foreign account	- 46	- 43	+ 27	+ 68	+ 6
Currency outside banks	+ 169	- 287	- 730	- 4	- 852
Other Federal Reserve liabilities and capital	- 53	+ 436	- 34	- 231	+ 118
Total "market" factors	-2,331	+3,580	- 932	-1,823	-1,506
Direct Federal Reserve credit transactions					
Open market operations (subtotal)	+2,600	-4,089	+1,490	+2,012	+2,013
Outright holdings:					
Treasury securities	+ 322	-1,190	+ 678	+ 787	+ 597
Bankers' acceptances	- 8	+ 3	- 18	- 27	- 50
Federal agency obligations	-	-	-	+ 234	+ 234
Repurchase agreements:					
Treasury securities	+1,972	-2,491	+ 663	+ 801	+ 945
Bankers' acceptances	+ 273	- 320	+ 107	+ 174	+ 234
Federal agency obligations	+ 41	- 91	+ 60	+ 43	+ 53
Member bank borrowings	- 23	+ 26	+ 65	+ 14	+ 82
Seasonal borrowings†	-	- 2	+ 1	+ 1	-
Other Federal Reserve assets‡	+ 101	- 41	- 346	- 278	- 564
Total	+2,679	-4,104	+1,209	+1,748	+1,532
Excess reserves‡§	+ 348	- 524	+ 277	- 75	+ 26

	Daily average levels				Monthly averages¶
	May 5	May 12	May 19	May 26	
Member bank:					
Total reserves, including vault cash‡§ ..	35,314	33,727	34,145	33,689	34,219
Required reserves	34,817	33,754	33,895	33,514	33,995
Excess reserves§	497	- 27	250	175	224
Total borrowings	30	56	121	135	86
Seasonal borrowings†	11	9	10	11	10
Nonborrowed reserves	35,284	33,671	34,024	33,554	34,133
Net carry-over, excess or deficit (-)¶ ..	- 77	212	10	72	54

Note: Because of rounding, figures do not necessarily add to totals.

* Includes changes in Treasury currency and cash.

† Included in total member bank borrowings.

‡ Includes assets denominated in foreign currencies.

§ Adjusted to include waivers of penalties for reserve deficiencies in accordance with the Regulation D change effective November 19, 1975.

¶ Average for four weeks ended May 26, 1976.

‡ Not reflected in data above.

\$40 million of new bonds provided an 8.88 percent return, while \$25 million of bonds was sold at 9.30 percent at the end of the month. The large premium that investors still will pay for high-quality debt was indicated in the following two industrial underwritings. A yield of 8.50 percent was sufficient for successful sale of \$300 million of Aaa-rated thirty-year debentures, but \$200 million of Aa-rated 25-year debentures was priced to provide an 8.90 percent return.

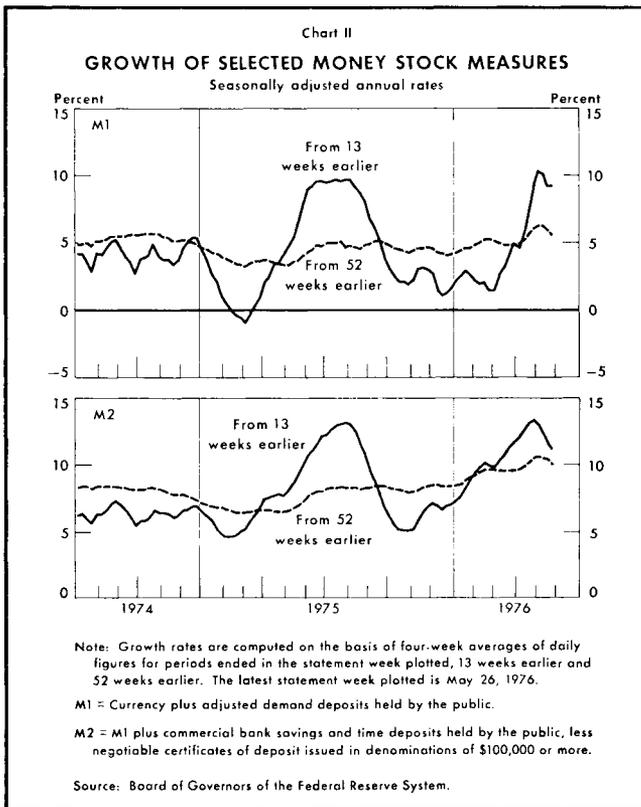
Table II
AVERAGE ISSUING RATES
AT REGULAR TREASURY BILL AUCTIONS*

In percent

Maturity	Weekly auction dates—May 1976				
	May 3	May 10	May 17	May 24	May 28
Three-month	4.921	5.072	5.250	5.495	5.578
Six-month	5.339	5.426	5.726	5.908	5.952

Maturity	Monthly auction dates—March-May 1976			
	March 3	March 31	April 29	May 26
Fifty-two weeks	6.010	5.781	5.645	6.309

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



Investors were offered a variety of state obligations during the month. In Aaa-rated issues, yields from 3.5 percent in 1977 to 6.3 percent in 1998 were provided by North Carolina bonds late in the month, compared with 3.3 percent in 1977 and 6.45 percent in 2001 on Illinois bonds at midmonth and 3.2 percent in 1977 to 5.85 percent in 1996 on Tennessee bonds (rated AA by Standard & Poor's) in late April. A \$59 million New York State issue, rated A/AA (Moody's/Standard & Poor's), was well received when offered at yields of 4.75 percent in 1977 to 7.60 percent in 2001. This marked the first public placement of New York State bonds in more than a year and a half. The Bond Buyer index of twenty bond yields on twenty-year tax-exempt bonds rose 48 basis points over the month to 7.03 percent, reflecting the extent of interest rate increases in May. The Blue List of dealers' advertised inventories rose by \$28 million to close the month at \$825 million.

Evaluating the Leading Indicators

By MAURY N. HARRIS AND DEBORAH JAMROZ*

Many people in the business community watch the composite index of leading indicators (CLI) with great interest. A combination of a dozen different economic time series, the CLI is designed to signal the direction of economic activity. While some economists believe that the index has tended reliably to forecast whether the economy is headed up or down in the near future, others point to "false signals" when downturns apparently projected by the leading indicators have failed to materialize. For some time, rapid inflation clouded interpretation of the CLI which, until recently, included many components expressed in current dollars. In response to this problem, the Commerce Department in May 1975 published a new series with fewer current-dollar components (see Table I and the chart). This article investigates the usefulness of the revised CLI as an indicator of future economic activity.

DESCRIPTION OF THE COMPOSITE INDEX OF LEADING INDICATORS

The index of leading indicators¹ is a composite of a dozen separate economic time series (listed in Table I), which were selected from over three hundred series on the basis of the following criteria: (1) how relevant the series was according to economic theory, (2) how well the series represented the economic process in question, (3) how consistently the series changed direction before a turning point in economic activity, (4) how well the

series conformed to historical business cycles, (5) how smooth it was, and (6) the length of the reporting lag. Although some of these criteria are objectively quantifiable, others such as "theoretical relevance" clearly depend upon the judgment of those constructing the index. The selected series are combined into a composite index, with the weights of the various components based on scores reflecting the same criteria used originally to select them.²

The justification for a composite series made up of several leading indicators has been stated by the Commerce Department as follows. First, if the relative importance of different causal factors varies in different business cycles, then it is helpful to consider a variety of indicators. Second, measurement errors of individual series can be large. If such errors are independent, then looking at a number of series lessens the possibility of being misdirected by erratic movements of a particular component. Finally, the volatility of individual series, which arises from short-term random disturbances, may be "ironed out" in a smoother composite index.

This rationale for generating a composite of leading indicators reflects some of the reasoning behind recent studies of the predictive value of combining separate forecasts.³ A primary conclusion of these analyses is that in most circumstances a combination of forecasts from different models is more accurate than any single model

* Mr. Harris is an economist and Ms. Jamroz is a research assistant in the Domestic Research Department of the Federal Reserve Bank of New York. They wish to acknowledge the valuable comments provided by their colleagues at the Bank, in particular Marcelle Arak and Leonard Sahling.

¹ Parts of the following section draw from the United States Department of Commerce [16]. The numbers in brackets refer to the works cited at the end of this article.

² Monthly changes for each component are first calculated and then standardized, so that all the series are expressed in comparable units. Next, for each month a weighted average of these changes is computed, with the weights determined by overall indicator scores. The monthly weighted average changes are again standardized so as to make the average monthly change without regard to sign equal to unity. Finally, the derived series of changes are cumulated into a monthly index with a base of 1967=100. For a more detailed description, see United States Department of Commerce [16].

³ Bates and Granger [1] and Nelson [11].

Table I
RELATIONSHIP BETWEEN THE NEW AND THE OLD
COMPOSITE INDEX OF LEADING INDICATORS

Series in new index	Series in old index
Average workweek of production workers, manufacturing	Same
Index of net business formation	Same
Index of stock prices, 500 common stocks	Same
Index of new building permits, private housing units	Same
Layoff rate, manufacturing (inverted)	Average weekly initial claims for unemployment insurance (inverted)
New orders, consumer goods and materials, 1967 dollars	New orders, durable goods
Contracts and orders for plant and equipment, 1967 dollars	Same, current dollars
Net change in inventories on hand and on order, 1967 dollars (smoothed)	Change in book value, manufacturing and trade inventories
Percentage change in sensitive prices, wholesale price index of crude materials excluding foods and feeds (smoothed)	Index of industrial materials prices
Vendor performance, percentage of companies reporting slower deliveries	Corporate profits after taxes
Money balance (M ₁), 1967 dollars	Change in consumer instalment credit
Percentage change in total liquid assets (smoothed)	Ratio, price to unit labor cost, manufacturing

Source: Boschan and Zarnowitz [2].

forecast taken by itself. However, the weights used for combining the individual forecasts into a composite forecast are usually based upon relative forecast errors or some such objective method that has desirable statistical attributes. Weighting the various CLI components by their scores is in the spirit of the above procedure, although the scores reflect additional criteria, some of which are noticeably subjective.

In 1967, Shiskin [13] reported a correction of the old CLI, which substitutes the higher trend of the coincident indicators for the lower trend of the CLI. This so-called reverse trend adjustment (RTA) of the old CLI shortened its lead time before peaks in economic activity, somewhat lengthened its lead time at troughs, and reduced the overall variability of the CLI's lead time before turning points. Also, the RTA made for a somewhat smoother series and lessened the amplitude of some false signals such as the one in early 1962. Therefore, the reverse trend adjusted CLI was generally considered to be more accurate. As a result of the RTA, however, some peaks became less well-defined as the magnitude of the

drops in post-peak months was lessened.

At times, economists have expressed concern that the development of the leading indicators has lacked explicit theoretical underpinnings.⁴ To be sure, the theoretical framework provided by those who developed the CLI does not satisfy all economists. However, the series in the CLI (see Table I) usually reflect either direct or indirect measures of demand for various components of output or factors which, according to at least some theories, tend to have an impact on demand. Changes in these components of demand usually lead to changes in output in the near future.

Among the direct measures of demand are the series on building permits, orders for consumer and producer goods, and net change in inventories on hand and on order. By themselves, inventories on hand, a series included in the old CLI, would not be a very good leading indicator because of the difficulty in distinguishing between intended accumulation and undesired buildups resulting from an unexpected fall in sales. However, the sum of inventories on hand and on order should rise when desired accumulation is occurring but not when slack demand trims orders and raises undesired inventories.

Indirect readings on demand include the lag in obtaining deliveries, the layoff rate and average workweek in manufacturing, changes in crude materials prices, and the index of net business formation. The lag in obtaining deliveries is an indication of the magnitude of suppliers' backlog of orders or unfilled demand, as deliveries usually slow up when the backlog rises. The average workweek is a leading indicator because employers tend to shorten or lengthen hours more quickly than they can adjust the work force; similarly, the layoff rate can be altered faster than the rate of new hires. Crude materials prices are rather sensitive to small changes in demand, much more so than prices of goods at later stages of fabrication. The index of net business formation is both a direct and an indirect demand measure. It indicates, in part, future demand for investment goods by new businesses as well as the formation of enterprises in response to higher aggregate demand.

Stock market prices are an indication of expected demand and can also, according to some economists, play a role in altering the level of demand. As stock prices reflect expected profits, the market usually turns up when investors foresee strong aggregate demand. In addition,

⁴ For example, see Koopmans [7].

because it is both an important component of individual wealth and a determinant of firms' cost of capital, the stock market can influence consumption and investment. Finally, the CLI includes two other financial variables—the money stock and total liquid assets. In many theories of aggregate demand, these liquid assets either directly or through influencing interest rates play important roles in determining spending.

USE OF THE CLI TO FORECAST TURNING POINTS IN ECONOMIC ACTIVITY

The CLI has been regarded primarily as an indicator of turning points in economic activity. One familiar method of judging the CLI's ability to forecast turning points has been to examine the length of time between a turn in the CLI and the subsequent turn in the level of economic activity and the variability of this lead time. If the lead time is only a few months, the index would not be very helpful

because there is a one-month reporting lag for a composite based on preliminary readings of eleven of the twelve components. Moreover, it takes a few months of subsequent declines (increases) to identify a turning point. In view of lags in the impact of stabilization measures, short leads preclude fully effective countercyclical macroeconomic policy. The variability in the lead times influences one's confidence in using the indicator to date prospective turns and is particularly important for the effectiveness of countercyclical stabilization actions. For example, an unusually long lead time at the peak may result in monetary and fiscal stimulation before it is necessary and may therefore be inflationary. Similarly, an unusually long lead at the trough can make policies, designed for the "average" lead, act to prolong the recession.

Table II presents comparisons of lead times for the old and revised indexes with and without RTA. The behavior of the old and revised series is fairly similar up until the most recent recession. Both series tend to have longer leads at peaks than at troughs. With RTA, the behavior of the two series is again fairly similar at troughs but becomes somewhat more different at peaks. While RTA markedly lowered the length and variability of leads for the old CLI, it does not do so for the new CLI. The behavior of the two series became divergent in recent years, as inflation imparted an upward bias to the old CLI. For example, the old CLI did not peak until July 1974, well after the recent recession had begun.⁵

With respect to the characteristics of the new CLI's lead times, the four-month lead before the 1953-54 recession seems too short to have been of much use to policymakers. As indicated earlier, an unusually long lead like the one before the 1957-58 recession can complicate policies designed to fight inflation. Timely leads were recorded before the 1960-61 and 1969-70 downturns. The five-month lead before the industrial production peak of November 1973 was relatively short. However, the timing of the November peak was influenced by the Arab oil embargo; in the absence of the embargo the peak probably would have been somewhat later. While some of the short leads before troughs were not very

Table II

OFFICIAL LEADS AND LAGS OF THE COMPOSITE LEADING INDICATOR (CLI) AT CYCLICAL TURNING POINTS, 1948-75

Peak	Lead (-) or lag (+) (months)		Trough	Lead (-) or lag (+) (months)	
	Old CLI	Revised CLI		Old CLI	Revised CLI
Original trend					
November 1948	*	*	October 1949	-4	-4
July 1953	-6	-4	May 1954	-6	-6
August 1957	-20	-23	April 1958	0	-2
April 1960	-12	-12	February 1961	-2	-2
December 1969	-10	-11	November 1970	0	-1
November 1973	+8	-5	March 1975†	0	0
Reverse trend adjusted (RTA)					
November 1948	*	*	October 1949	-5	-4
July 1953	-6	-4	May 1954	-6	-6
August 1957	-8	-21	April 1958	-2	-3
April 1960	-3	-11	February 1961	-2	-11
December 1969	-8	-7	November 1970	-6	-8
November 1973	+8	-5	March 1975†	0	0

* Available data do not extend back far enough to enable identification of a peak.

† Tentative.

Source: Boschan and Zarnowitz [2].

⁵ Some economists might argue that the November 1973 peak in industrial output was brought on in large part by a special exogenous factor, the Arab oil embargo, and date the demand-related recession as starting several quarters later. For example, Bowsher [3] dates the demand-related recession as starting after September 1974. With this particular dating, the old CLI leads the demand-related peak by two months, a very short lead.

informative, the CLI (without RTA) did not exhibit any unusually long leads which could have prompted inadequately expansive countercyclical policies.

In addition to stable leads which are not too short, another important criterion is the frequency of false signals. False alarms can trigger countercyclical policies which in retrospect turn out to be inappropriate. A number of studies have attempted to gauge the frequency of false signals emitted by the old CLI series.⁶ While their methodologies have differed, they have usually concluded that the old CLI series at times gave false and confusing signals, primarily during upturns.⁷

An important limitation of some past studies is that they did not use magnitude as a criterion in calling a signal. Most forecasters would probably not alter their near-term forecasts on the basis of small changes in direction. Also, some directional changes may be discounted on the basis of the preceding trend. For example, suppose the index rises after a larger and longer series of declines that had not been followed by a recession. As the CLI has a short lead at troughs, the upturn in the index suggests that economic activity will soon increase. On the other hand, the previous declines imply that a recession will occur within about twelve months after the CLI peak. How to reconcile these two conflicting pieces of information will depend upon the magnitude of the earlier downturn, compared with the current increase in the CLI. If the signal of an upturn is weak, it would probably be disregarded as it is outweighed by a stronger previous downward signal which has yet to exert its lagged impact.

A review of past studies points up the difficulty of specifying mechanical rules for determining incorrect signals.⁸ Therefore, rather than develop any elaborate framework

for designating false alarms emitted by the new CLI, a simple screening procedure was adopted to identify potential misleading signals. Two consecutive movements opposite to the previous trend of the CLI without the predicted turning point coming in the following year were labeled potential false alarms. Then, each episode was further studied to determine if the signal would have been misleading in view of the information likely available at the time of the signal. Some consecutive changes in direction were not considered to be false alarms, because they were smaller than any previous consecutive directional changes following correct turning-point signals. CLI movements reflecting strikes were also not counted as false alarms.

Evaluation of the new CLI brought to our attention some instances where possibly confusing signals were emitted (see the chart). The new index declined in the final months of 1950 and throughout most of 1951 without a recession following. Prior to the business-cycle peak in August 1957, the index behaved in a misleading manner. It peaked in late 1955, and a recession did not come until almost two years later. We identified four potential false signals in the 1960's. In the March-June 1962 period, the CLI declined for four straight months by an amount that exceeded the drops following CLI peaks before prior recessions. In 1963 the CLI registered two straight drops which were larger than declines after some past CLI peaks preceding downturns. In 1966, quite sizable declines were registered and again no recession followed. Later, in 1968, the index fell in three of the first four months of the year by amounts similar to those recorded after some past correct peak signals. And also, in 1974, the CLI gave temporarily confusing signals as it increased in February and particularly sharply in March. Contrary to what we found with the old CLI, the new index with RTA does not emit fewer false signals.⁹

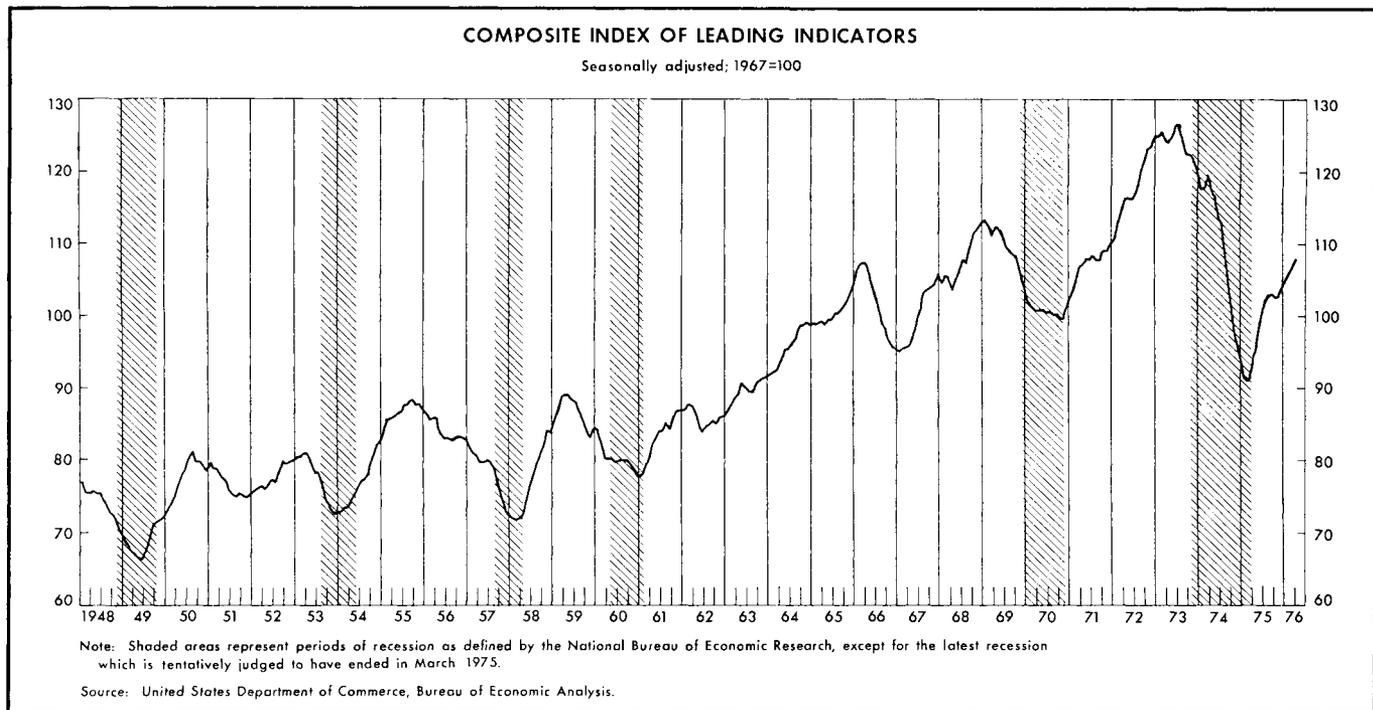
Focusing more closely on some of the above-cited episodes, several arguments can be made in defense of the index. After the fact, it may not be proper to label some CLI downturns as false signals without considering

⁶ Okun [12], Evans [4], Stekler and Schepsman [15], and Hymans [6].

⁷ Some past studies of the old CLI evaluated its signaling ability when based upon preliminary economic data, compared with historically revised data. Hymans [6] reports that the preliminary and the first-revision estimates of the leading indicators surprisingly outperformed the historically revised leading indicators. He argues that the anomaly can be partly explained by the nature of his test which depends on directions of change. On the other hand, in their analysis of leads between turning points in the leading indicators and industrial production, Stekler and Schepsman [15] concluded that the CLI based on contemporaneous data did have false turns which were later revised away. These two divergent findings may be reconciled, in part, by the somewhat different methodologies employed.

⁸ For examples of the many problems of formulating a decision rule for labeling false turns, see the discussants' comments in Hymans [6].

⁹ One false signal, in 1963, was eliminated because the series with RTA fell by what we judged to be an insignificant amount. However, the RTA series hovered erratically around its peak value for almost two years before the 1957-58 downturn. In the 1960-61 recession, it fell in the final three months of the year, after rising in five of the previous six months. The recession subsequently troughed in February 1961. After its peak in June 1973, it rose in the following October-November and February-March periods.



whether the policy response to the early warnings prevented the turn from actually occurring. Shiskin [14] makes an interesting case that declines in components of the old CLI during 1962 and 1966 prompted stabilization measures which helped to forestall recessionary tendencies in the economy. Also, the CLI downturns in 1951, 1962, and 1966 were followed by "growth" recessions, periods of below-average economic growth.¹⁰ Nevertheless, it is difficult to distinguish clearly CLI behavior before growth recessions and most orthodox downturns, although the two may call for different public and private decisions. The CLI rise in February-March 1974 might have been discounted as a sign of recovery. A part of the drop in industrial production as of that date was undoubtedly related to the Arab oil embargo, so that some analysts might have questioned whether a "standard" recession had indeed begun. As the index had been falling since the previous

¹⁰ Mintz [9] has identified growth recessions in the June 1951-June 1952, April 1962-March 1963, and June 1966-October 1967 periods.

June, the weight of evidence was for a standard recession to occur. Finally, the false signals in 1963, 1968, and early 1974 were subsequently reversed, and this emphasizes primarily the necessity of observing movements for at least a quarter of a year before predicting a business-cycle turn. Still, as the period required for confirmation increases, the CLI becomes less useful in guiding timely stabilization policies.

In evaluating the new CLI's worth to policymakers, values must be assigned to correct and false signals. The ability of the new CLI to signal true recessions is valuable in terms of suggesting the need for stabilization policies that can maintain high levels of output. This benefit must be weighed against the inflationary implications, however, if policymakers react to false recession signals by taking unnecessary stimulative measures.

IDENTIFYING FALSE TURNS. In view of the possible inflationary consequences if policymakers are misled by false recession signals, it would be very helpful if false signals could be readily identified. The review of past analyses, along with our evaluation of false signals, has suggested a few means of discerning false turns. As discussed earlier,

potentially misleading signals can possibly be identified at the time they occur by consideration of magnitudes of change compared with past correct signals, strength of the preceding trend, strikes, and likely fiscal and monetary policy changes.

We also considered whether some of the confusing signals which we identified were associated with changes in a fewer number of components than was the case before other downturns. A comparison was made of the number of components of the new CLI falling over the first two months after peaks preceding conventional and growth recessions and also after false peaks. As expected, the average number of declining components was less both before growth recessions (7.33) and after false peaks (7.33) than before true recessions (8.25). However, as the number of observations are few and the differences are not large, no strong conclusions are warranted.

VALUE OF CLI AS A QUANTITATIVE PREDICTOR OF ECONOMIC ACTIVITY

So far, we have examined the CLI's ability to signal changes in the direction of the economy, which was the primary function envisaged by those constructing the CLI. How well does it do as a general forecaster of the level of economic activity? Some previous research had been directed toward using the old CLI as a quantitative predictor of either real gross national product (GNP) or

industrial production.¹¹ We have attempted to assess the value of the new CLI as a forecaster of real GNP (see Table III). Over a sample period extending from 1953-I through 1970-II, the percentage change in the CLI in the previous quarter could explain around 37 percent of the variation in real GNP growth. (While this R^2 —i.e., squared correlation coefficient—of 37 percent may appear low, it should be remembered that equations explaining percentage changes typically have substantially lower R^2 's than when the dependent variable is defined in levels or changes in levels.) The correlation fell markedly ($R^2=.17$), however, when the CLI was lagged two quarters. Similar results were obtained using the CLI with RTA. Given the known lags in the impact of stabilization policies, the inability to forecast more than the upcoming quarter is certainly a weakness of the CLI.

How well does the lagged CLI predict real GNP growth relative to other forecasting devices? Out-of-sample forecasts, using the CLI lagged one quarter, were generated from 1970-III through 1976-I. The mean absolute error (MAE)—the summation of the absolute differences between actual percentage changes in constant-dollar GNP and predicted percentage changes from 1970-III through 1976-I divided by the twenty-three forecasted quarters—was then computed. The MAE associated with the CLI was lower than the MAE obtained from an often employed standard of comparison, a simple autoregressive model in which the percentage change in real GNP was regressed on the change in the previous period. On the other hand, the CLI's MAE is somewhat above that for published *ex ante* forecasts from large and elaborate econometric models.¹² However, these large models are more costly to use and their forecasts often reflect adjustment of the pure-model results with information not formally included in the model. Similarly, it would be wise for forecasters to use the new CLI in combination with other information. And our regression findings, along with the new CLI's ability to signal all postwar downturns, suggest that the index does perform well enough to qualify as a useful forecasting input.

Table III
ACCURACY IN FORECASTING
REAL GROSS NATIONAL PRODUCT (GNP) GROWTH

Model	Sample period 1953-I through 1970-II	Post-sample period 1970-III through 1976-I
	Mean absolute error, in percent	
Forecast with CLI lagged one quarter*	2.61	3.31
Forecast with lagged GNP†	2.77	3.98

* $\% \Delta$ Real GNP = $2.89 + .21 (\% \Delta \text{ new CLI})_{-1}$,
(7.32) (6.30)

where $R^2 = .37$, SEE = 3.24%, DW = 1.70

† $\% \Delta$ Real GNP = $1.67 + .48 (\% \Delta \text{ Real GNP})_{-1}$,
(2.98) (4.59)

where $R^2 = .24$, SEE = 3.56%

Key: R^2 = Coefficient of determination

SEE = Standard error of estimate

DW = Durbin-Watson statistic

t-statistics appear in parentheses under regression coefficients

¹¹ Moore [10] and Greenwald [5] evaluated CLI projections of GNP growth, and Stekler and Schepsman [15] focused on CLI forecasts of monthly industrial production.

¹² Examining *ex ante* quarter-ahead real growth forecasts from six econometric models plus a composite of judgmental forecasts, McNees [8] reports an average MAE of 1.9 percent for the sixteen quarters ended in the first half of 1974. Over a similar period the MAE associated with the lagged CLI was 2.9 percent.

SUMMARY AND CONCLUSIONS

Judged in terms of its ability to forecast turning points, the revised CLI has never failed to signal any of the post-war downturns. On the other hand, it has occasionally dropped without a recession following. In a few cases, "growth" recessions followed, although it is usually not possible to distinguish CLI movements before conventional and growth recessions. While some other false signals of recession were later reversed, these episodes imply that it often takes at least a quarter of a year to confirm some signals. False alarms can sometimes be identified by

examining magnitudes of change compared with past correct signals, the strength of the preceding trend, the diffusion of changes among components, and reactions of the monetary and fiscal authorities.

The new CLI does have some ability to forecast the magnitude of economic growth one quarter ahead but is somewhat inferior to the forecasts of the large econometric models for the 1970's. Moreover, the explanatory power of the new CLI lagged more than a single quarter is weak. Still, providing that users recognize its limitations, the new CLI can be a useful complement to other available forecasting methods.

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Treasury and Federal Reserve Foreign Exchange Operations Interim Report: February-April 1976

By ALAN R. HOLMES AND SCOTT E. PARDEE*

In early 1976, the dollar was largely shielded from the variety of tensions which developed in markets for other currencies. By that time the latest economic indicators suggested that the United States recovery was regaining momentum and was more solidly based than the more recent upturns in other industrial countries. Moreover, with the United States already having one of the lowest rates of inflation among industrial countries, the further moderation in the uptrend of prices here bolstered sentiment toward the dollar.

Elsewhere, divergent price and productivity performances among European countries had led many market participants to expect that exchange rate adjustments might again be necessary, both by those within the Economic Community (EC) "snake" arrangement and by other European countries whose trade is closely linked to that group. During January, concern over political and economic developments in Europe generated speculative pressures in markets for several European currencies. The Italian lira declined after the Bank of Italy withdrew temporarily from the market to conserve its reserves during a prolonged Cabinet crisis. In several other markets, central banks intervened sometimes heavily to moderate fluctuations in their currencies. The dollar occasionally came on offer against the German mark, Dutch guilder, and Swiss franc in late January, but Federal Reserve intervention was limited to modest sales

of marks out of existing balances without renewed recourse to the System's swap arrangements with foreign central banks.

By early February, intense two-way speculation had developed within the EC snake arrangement. With the French franc heavily on offer and the German mark in demand, the two currencies were pushed toward the opposite extremes of the EC band. Strains also developed within the 1½ percent Benelux band, driving the Belgian franc to the bottom and the Dutch guilder to the top. Since the dollar figured heavily in these various dealings—both as a vehicle currency for many market participants and as an intervention currency for central banks—the dollar was soon caught up in the cross fire. With several central banks defending their own currencies through dollar sales, the potential for even larger accumulations of dollar balances in traders' positions began to weigh on market psychology. Dealers, therefore, sought to shift into currencies they believed more likely to rise in the very near future. In the process, the German mark began to rise more sharply, exerting an upward pull on other European currencies including those still under generalized selling pressure. Consequently, the dollar, which by February 2 had already slipped by 2½ percent against the mark from the late 1975 highs, declined a further 1½ percent by February 11.

As speculative pressures mounted, the French and German central banks stepped up their intervention to defend the limits of the snake, not only in dollars but in each other's currencies as well. At the same time, with the New York market also becoming unsettled, the Federal Reserve intervened on four days between February 2 and 11. The System sold a total of \$137.4 million equivalent of marks, financed by \$80.9 million of drawings under the swap arrangement with the Bundesbank and by use of existing balances. In addition, the System sold \$19.6 mil-

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lion equivalent of Dutch guilders, drawn on the swap line with the Netherlands Bank.

The immediate strains on the snake then eased, as the concerted intervention by the member central banks was reinforced by strong statements by their respective governments denying the need or advisability of rate adjustment. Trading conditions gradually improved during late February, and the Federal Reserve intervened on only two occasions when the dollar dropped abruptly against the mark, selling a total of \$15.8 million equivalent from balances. Otherwise, the dollar gradually rose against the main Continental currencies to above the levels of early February, providing the opportunity for the System to acquire \$54.1 million of marks in the market and from correspondents. Part of these acquisitions was used in early March to repay \$26.4 million of the recently incurred swap indebtedness with the Bundesbank.

This temporary calm in the European exchange markets was again broken early in March, when sterling suddenly came under selling pressure and fell below the \$2.00 level. Market fears of widespread readjustments in European currency relationships quickly resurfaced. By March 5, the EC snake was again stretched to its limits and required substantial intervention to maintain the prescribed margins. As market concern over the durability of existing parities in the European snake

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

In millions of dollars

Banks drawing on Federal Reserve System	Drawings on Federal Reserve System outstanding January 31, 1976	Drawings (+) or repayments (-) February 1 through April 30, 1976	Drawings on Federal Reserve System outstanding April 30, 1976
Bank of Italy	250.0	+250.0	500.0
Bank of Mexico	-0-	+360.0	360.0
Total	250.0	+610.0	860.0

progressively deepened, intervention in EC currencies swelled to massive proportions. With markets increasingly nervous and unsettled, the Federal Reserve entered the New York market on March 5 and March 12 with offerings of marks, selling \$52.8 million equivalent of which \$23.2 million was financed under the swap line with the Bundesbank and the rest from balances.

Following a meeting of EC Finance Ministers over the weekend of March 13-14, the French government announced that it would withdraw the franc from the snake. At the same time, the Dutch and Belgian authorities announced the suspension of the separate 1½ percent Benelux band. Over subsequent days, however, speculation persisted over the possibility of further adjustments in rates for other European currencies and bidding for marks remained strong, pushing the dollar down a further 1 percent. These pressures spilled into the New York market on March 16-17, and the Federal Reserve again intervened in marks, selling \$34.9 million equivalent of which \$29.8 million was drawn under the swap line and the remainder from balances. Thereafter, further sizable intervention in European currencies, supported by restrictive monetary measures by those countries whose currencies were pinned to the bottom of the snake, and firm denials by German and other EC government officials of any intention of altering existing parities led to a gradual relaxation of these speculative tensions.

Meanwhile, evidence of additional improvement in production and employment levels in the United States, coupled with further encouraging price developments, reinforced the generally favorable market sentiment toward the dollar. Market expectations of an early firming of United States short-term interest rates also had a steady-

Table I

FEDERAL RESERVE SYSTEM DRAWINGS AND REPAYMENTS
UNDER RECIPROCAL CURRENCY ARRANGEMENTS

In millions of dollars equivalent

Transactions with	System swap commitments, January 31, 1976	Drawings (+) or repayments (-) February 1 through April 30, 1976	System swap commitments, April 30, 1976
National Bank of Belgium	252.9	-- 81.3	171.7
German Federal Bank	-0-	{+133.9 {- 53.9	80.0
Netherlands Bank	-0-	{+ 19.6 {- 19.6	-0-
Swiss National Bank	567.2	{+600.0* {- 20.0	1,147.2
Bank for International Settlements	600.0	--600.0*	-0-
Total	1,420.1	{+753.5 {-774.8	1,398.8

Note: Discrepancies in totals are due to rounding.

* Consolidation of Swiss franc swap debt.

ing influence. Consequently, although the dollar was at times caught up in the backwash of further flows out of sterling and the Italian lira in late March and April, it traded fairly narrowly against the mark and other currencies in the EC snake. The Federal Reserve therefore intervened only once in late March, selling \$9.9 million of marks from balances. Otherwise, taking advantage of the dollar's basic buoyancy on quiet days, the Federal Reserve acquired currencies needed to repay swap debt. The System thus purchased \$119.6 million of marks in the market and from correspondents, liquidating a further \$27.5 million of commitments in that currency, and bought sufficient guilders in the market to liquidate in full the \$19.6 million swap on the Netherlands Bank incurred in February.

In summarizing operations over February-April, the Federal Reserve sold in the market a total of \$270.4 million equivalent of foreign currencies. In marks, System sales amounted to \$250.8 million, with \$133.9 million financed by drawings under the swap arrangement with the Bundesbank and \$116.9 million from balances. Mark purchases totaled \$173.7 million equivalent of which \$53.9 million was used to liquidate swap drawings on the Bundesbank, leaving \$80 million equivalent outstanding at the end of the period. The System also sold \$19.6 million equivalent

of Netherlands guilders financed by a swap drawing, which was subsequently repaid with balances acquired in the market.

In addition, the Federal Reserve made further progress in repaying swap debt outstanding since August 1971. Throughout the period the System continued to buy Belgian francs in the market and from correspondents, purchasing \$74.9 million equivalent. These acquisitions, together with existing balances, were used to repay \$81.3 million equivalent of the drawings on the National Bank of Belgium, leaving \$171.7 million outstanding at end-April. The Federal Reserve in February transferred its \$600 million of Swiss franc swap debt from the Bank for International Settlements to the Swiss National Bank. During the period, the System purchased \$33.2 million equivalent of Swiss francs from correspondents and liquidated \$20 million of its debt with the Swiss central bank. Swiss franc commitments outstanding at end-April totaled \$1,147.2 million.

Also during the period, the Bank of Italy, after resuming market operations in early March, drew \$250 million on its swap line with the Federal Reserve, raising total drawings to \$500 million. In addition, in early April, the Bank of Mexico drew the full \$360 million available under its swap line with the Federal Reserve.