

Research Department
Federal Reserve
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Money and Prices — 1979

In a recent (March 2) *Weekly Letter*, we discussed the results of statistical tests examining the relation between the money supply and inflation. These results supported approaches which explain most inflation in terms of money-supply growth. However, they failed to support cost-push theories, which say that the money supply usually increases in response to — or to accommodate — previous increases in wages or key commodity prices. The article closed by remarking that even though cost-push or accommodation factors were not found to be *systematically* important in explaining money growth and inflation, these factors still might be important in particular cases.

In examining such special cases, a monetary approach would use recent money-supply behavior to estimate the underlying rate of inflation. It would then look to non-monetary factors for sources of temporary — but sometimes important — differences between actual and underlying inflation rates. The present article uses such an approach to analyze the 1978 acceleration in inflation, and to suggest implications for the 1979 inflation outlook.

Some features of our money price equation deserve mention. As suggested above, the equation relates the systematic or underlying part of inflation exclusively to lagged rates of growth in the money supply (with the brunt of the money supply's effect transmitted within ten quarters). However, the equation also allows random factors to temporarily alter the actual inflation rate away from its underlying value. Such "shocks" have

both immediate and subsequent effects on inflation, reflecting the tendency for price changes to spread through the economy over time, and then eventually die out.

Inflation in 1978

Now, consider inflation developments in 1978. Many commentators have pointed to increases in food prices, minimum wages, and payroll taxes (among other factors) as having served to accelerate inflation in 1978. Yet it's also true that money-supply growth started to accelerate in late 1976 and early 1977, and that this by itself would imply an acceleration in inflation in 1978, given the lags in the effect of money on prices.

If cost-push factors were predominant, there should have been a considerable amount of 1978 inflation that would not be explained by the money-supply terms in our equation. To determine whether this was the case, our estimating equation can be used to "forecast" 1978 inflation given actual M_1 growth in the period. The "forecasted" inflation rate is then a measure of the amount of inflation attributable to the money supply, while differences between actual and "forecasted" inflation presumably indicate the importance of non-monetary or random disturbances.

Four quarterly "forecasts" of CPI inflation in 1978 were thus obtained. For the year as a whole, the "forecast" price increase of 7.0 percent compared with an actual increase of 9.0 percent.

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These "forecasts" were made without the use of any 1978 information except for actual money growth through 1978.3. Yet the "forecasted" inflation rates were close to actual rates. Not only did the money supply account for an acceleration in inflation, but it gave quarterly inflation forecasts that were reasonably close to actual figures in every quarter but 1978.2.

To put these estimates in context, we may compare them to the forecasts made by major econometric modellers and economic analysts. At the beginning of 1978, Wharton Econometrics forecasted 6.4 percent CPI inflation. Similarly, *Time* magazine's consensus rate was 6.2 percent, and *Euromoney* magazine's was 6.25 - 6.5 percent. These forecasts — which were made with full knowledge of the dollar's 1977 devaluation, and of the coming increases in payroll taxes and the minimum wage — presumably included the profession's best guess as to the impact of these factors. However, they were much lower than actual experience, and also failed to perform as well as a "forecast" based on direct use of the money supply and actual 1978 money growth figures. These points are not meant to criticize these forecasts, but to suggest that the money supply was at least as important — if not more important — than the dollar's 1977 decline and legislated cost increases in explaining 1978 inflation.

Of course, one factor not generally known to forecasters at that time was the large increase in food prices that occurred in the first half of 1978. These food-price increases may be integrated with the money-supply information to determine how much 1978 can then be explained. In the long-run, the

food-price increase will not affect the price level, assuming no increase in the money supply to accommodate it, but will at most affect food prices relative to those of other goods.

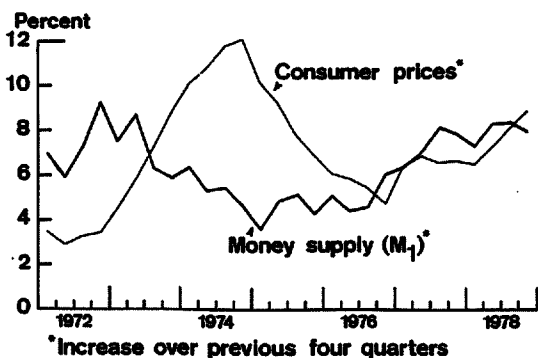
Still, in the short run, other prices might be slow to react, and the food-price increases could temporarily impact fully on the price level. In this case, we would expect the prices of other goods to rise at the underlying inflation rate, while food prices rise somewhat faster. The recorded inflation rate would then be an average of these two different rates of increase. The underlying inflation rates implied by our equation are simply the "forecasted" inflation rates shown above.

Using actual 1978 consumer food-price increases and money-supply growth rates, and a weight of 18 percent for food in the CPI, these calculations yield a yearly inflation rate "forecast" of 8.5 percent. In other words, the food-price phenomenon helps explain one-and-a-half percentage points of the difference between the actual and underlying money-induced inflation rates. Together, money-supply growth rates and food-price increases explain all but one-half of one percentage point of actual inflation.

1979 Inflation

What does this approach suggest about inflation in 1979? The answer depends upon the assumptions we make about money-supply growth and food-price increases.

First, we assume that the M_1 money supply will increase 6 percent in terms of historical rates. Given certain institutional changes, such as the impact of automatic-transfer accounts on the



monetary aggregates, this is consistent with measured M_1 growth of 1.5-4.5 percent. With this 1979 assumption and our actual 1978 money-growth experience, our simulation yields an 8.2 percent CPI inflation forecast for 1979. This forecast measures the underlying rate of inflation due to monetary factors alone.

We can use food-price factors to refine this forecast in several different ways. We might regard the food-price developments (reduced herds and bad weather) as a normal inflationary shock, which would have lingering effects on 1979 prices. These would add to monetary factors to yield a 1979 inflation forecast of 9.2 percent.

Alternatively, we might assume that these 1978 problems served merely to hasten general inflation trends in food prices that would have occurred eventually anyway. In this case, with more normal conditions in 1979, the large food-price increases of 1978 would then be followed by smaller increases in 1979. The net effect on the price level by late 1979 might then be negligible. In this case, we would subtract the above-normal 1978 food-price increase from the underlying monetary forecast for 1979 to obtain an

adjusted inflation forecast of 6.7 percent for 1979.

Another scenario is presented by the Department of Agriculture's forecasted food-price increase — 8.5 percent — which suggests neither an improvement nor a worsening of the current situation. If relative food prices stabilized, and the price increases of other goods slowed somewhat to reflect increased expenditures on food, we might not experience any lagged inflationary effects of the earlier food-price increase — but also might not experience any compensating slowdown in 1979 inflation. Our initial 8.2-percent price forecast, based on assumed money-supply considerations alone, would then appear the most likely outcome.

In sum, based on different food-price scenarios, CPI inflation in 1979 should fall somewhere in the broad range of 6.7 to 9.2 percent, with an 8.2 percent value likely if the food situation turned neutral. But further strong increases in food prices, such as we have experienced in the first two months of the year, could make higher values more likely.

Michael Bazdarich

Publications Available

Copies are now available of two recent speeches by John J. Balles, President of the Federal Reserve Bank of San Francisco. "U.S. - Japan Economic Relations" outlines steps that should be taken by the two nations to stabilize the dollar and reduce barriers to world trade and finance. "Inflation — Causes and Prospects" discusses the role of monetary and fiscal policy in the current inflationary situation. Free copies of these and other Reserve Bank publications can be obtained by calling or writing the Public Information Section, Federal Reserve Bank of San Francisco, P.O. Box 7702, San Francisco 94120. Phone (415) 544-2184.

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BANKING DATA—TWELFTH FEDERAL RESERVE DISTRICT (Dollar amounts in millions)

Selected Assets and Liabilities Large Commercial Banks	Amount Outstanding 3/14/79	Change from 3/7/79	Change from year ago @	
			Dollar	Percent
Loans (gross, adjusted) and investments*	121,560	- 606	NA	NA
Loans (gross, adjusted) — total#	99,205	- 751		
Commercial and industrial	28,976	- 17		
Real estate	35,590	167		
Loans to individuals	20,508	74		
Securities loans	1,573	- 214		
U.S. Treasury securities*	7,744	36		
Other securities*	14,611	109		
Demand deposits — total#	40,193	30		
Demand deposits — adjusted	29,516	- 138		
Savings deposits — total	29,622	- 55		
Time deposits — total#	50,413	- 249		
Individuals, part. & corp.	40,958	- 212		
(Large negotiable CD's)	18,124	- 336		
Weekly Averages of Daily Figures	Week ended 3/14/79	Week ended 3/7/79	Comparable year-ago period	
Member Bank Reserve Position				
Excess Reserves (+)/Deficiency (-)	+ 53	+ 7	- 39	
Borrowings	27	82	16	
Net free reserves (+)/Net borrowed(-)	+ 26	- 75	- 56	
Federal Funds — Seven Large Banks				
Net interbank transactions	+ 1,620	+ 1,649	+ 1,059	
(Purchases (+)/Sales (-))				
Net, U.S. Securities dealer transactions	+ 315	+ 482	+ 529	
(Loans (+)/Borrowings (-))				

* Excludes trading account securities.

Includes items not shown separately.

@ Historical data are not strictly comparable due to changes in the reporting panel; however, adjustments have been applied to 1978 data to remove as much as possible the effects of the changes in coverage. In addition, for some items, historical data are not available due to definitional changes.

Editorial comments may be addressed to the editor (William Burke) or to the author

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