

Research Department  
Federal Reserve  
Bank of  
San Francisco

February 17, 1978

## Cycles Within Cycles

In each of the last two years, real GNP growth followed the same pattern — a first-quarter peak, followed by a gradual deceleration to a fourth-quarter low. In 1976, growth decelerated from an 8.8-percent rate in the first quarter to a 1.2-percent rate in the fourth quarter; in 1977, the range was from a 7.5-percent to a 4.2-percent growth rate.

Yet a strikingly different picture emerged when inventories were left out of account — that is, when the standard used was real final sales (GNP less inventories). By that yardstick, the final months each year were by far the strongest, with a 6.3-percent growth rate in the final quarter of 1976 and a 6.8-percent growth rate in the final quarter of 1977. (The latter figure represented the strongest quarterly gain of the past five years.) In contrast, the January-March period was one of the weakest (if not the weakest) period in both of those two years.

### Behind the pause

The common use of the term "pause" to describe the behavior of the last half of 1976 and 1977 is somewhat beside the point, especially in view of the very strong behavior of final sales in the periods in question. Rather, this paradoxical situation demonstrates that a short-run cyclical factor has been operating within the framework of a strong and broad business-cycle expansion. This "mini-cycle" is simply an inventory cycle of short duration and reasonably

modest amplitude. However, it should not be confused with the massive — and sustained — liquidation of unwanted stocks that dominated the 1974-75 recession.

Instead, in the first quarter of 1976, a shift occurred from a modest liquidation to a relatively strong accumulation of stocks, making for a \$14.3-billion annual rate of gain in that single quarter. Again, in the first quarter of 1977, a similar \$11.5-billion shift toward accumulation occurred. (In both cases, the figures are cited in terms of real or constant 1972-value dollars.) In the middle quarters of both years, business firms added more inventories, although not substantially more, while in each fourth quarter, they cut back their accumulation rate or even liquidated stocks, in response to the late-year surge in final sales which swept the shelves clean in many businesses.

### Behind the cycle

The mini-cycles we have experienced are caused by changes in the rate of inventory accumulation, which in turn reflect changes in final sales. Consider how this operates in the retail sector. If sales are booming and goods are moving off retailers' shelves, they will re-order in greater volume in order to meet the demand for their goods. If retail sales are lagging, merchants will postpone ordering new goods until they are able to re-establish desired ratios of inventories to (current and expected) sales. The level of causation

(continued on page 2)

FRB SF Weekly Letter

Research Department

# Federal Reserve Bank of San Francisco

Opinions expressed in this newsletter do not necessarily reflect the views of the management of the Federal Reserve Bank of San Francisco, nor of the Board of Governors of the Federal Reserve System.

---

thus runs from sales volume to inventory levels to industrial production, as retailers adjust their new orders in line with their inventory positions.

Once inventory buying and industrial production begin to rise in response to rising sales, they tend to continue along the same path even after the marketplace begins to send different signals through changes in final sales. For example, a decline in retail sales following the first quarter of 1976 was not accompanied by reductions in inventories or output. However, by September, businessmen noted that inventories were getting out of line with realized (as opposed to anticipated) sales. Consequently, they tried to bring inventories back into line by cancelling or reducing orders, and in the process brought about a slowdown in industrial output.

Essentially the same sequence of events took place in 1977. Again, as inventories grew in a situation of falling retail sales, businessmen acted to trim unwanted inventories and thus helped bring about a slowdown in industrial production. Real GNP grew sharply in the first quarter of 1977 as businessmen attempted to restock inventories in response to the stronger-than-anticipated sales in the preceding quarter. The deceleration in real GNP growth

later in 1977 reflected efforts to bring inventories into line with sales.

This mini-cycle of inventory adjustments demonstrates the tendency of businessmen to become more averse to risk in an increasingly uncertain world. After the traumatic experience of the 1974-75 inventory liquidation, businessmen have become more cautious, in this case by reducing their "desired" levels of inventories relative to sales. Because their preferred inventory levels are lower, they find themselves with smaller cushions than heretofore, and therefore are forced to make more frequent adjustments in stocks. For example, if sales are stronger than anticipated, inventories will quickly fall below desired levels and businessmen will reorder goods to rebuild stocks. Conversely, if sales fall short of expectations, they will act swiftly to reduce inventories to desired levels. On the whole, these frequent and modest adjustments are a healthy thing, for they minimize the much larger swings in inventories which were a major factor in past business cycles.

## **Response—'77 and '78**

The mini-cycle resulting from this type of adjustment thus is at the root of the recent quarterly variations in real GNP. However, this mini-cycle does not of-

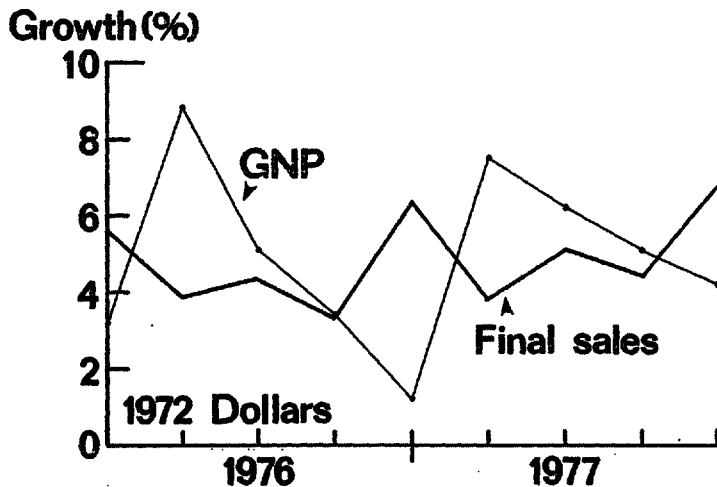
for a comprehensive and complete explanation of the general business cycle, because it ignores the impact of changes generated in other major sectors of the economy. Nonetheless, the several sequences of rapid surge and then pause in the 1976-77 period can now be seen essentially as a series of fairly rapid inventory responses to fluctuations in sales.

In 1978, the same type of flexible response may be evident, as business firms continue to exhibit cautious inventory policies, taking full advantage of the computer for monitoring inventory behavior. Many analysts believe

that the late-1977 acceleration of final sales and downturn in the stock-building rate will lead to an upswing in inventory investment in the early part of the year — paralleling again the behavior seen in both early 1976 and early 1977. But there are some cross-currents now at work, including the buildup of unwanted inventories on car dealers' lots and the disappearance of utilities' coal stockpiles as a result of the prolonged mine strike. However, the consensus view seems to envisage considerable strength because of the need to rebuild depleted stocks in other areas besides the coal fields.

Herbert Runyon

## CHANGE IN GNP AND FINAL SALES



Research Department  
Federal Reserve  
Bank of  
San Francisco

Alaska • Arizona • California • Hawaii  
Idaho • Nevada • Oregon • Utah • Washington

FIRST CLASS MAIL  
U.S. POSTAGE  
PAID  
PERMIT NO. 752  
San Francisco, Calif.

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

Selected Assets and Liabilities Large Commercial Banks	Amount Outstanding 2/1/78	Change from 1/25/78	Change from year ago	
			Dollar	Percent
Loans (gross, adjusted) and investments*	105,774	- 146	+ 12,821	+ 13.79
Loans (gross, adjusted) — total	83,755	- 245	+ 12,214	+ 17.07
Security loans	2,258	- 785	- 375	- 14.24
Commercial and industrial	25,428	+ 332	+ 2,428	+ 10.56
Real estate	27,843	+ 93	+ 6,055	+ 27.79
Consumer instalment	14,903	+ 83	+ 2,593	+ 21.06
U.S. Treasury securities	7,731	+ 190	- 790	- 9.27
Other securities	14,288	- 91	+ 1,397	+ 10.84
Deposits (less cash items) — total*	102,501	- 187	+ 10,656	+ 11.60
Demand deposits (adjusted)	28,614	- 79	+ 2,612	+ 10.05
U.S. Government deposits	445	+ 100	+ 146	+ 48.83
Time deposits — total*	71,737	- 306	+ 7,603	+ 11.85
States and political subdivisions	6,616	- 53	+ 641	+ 10.73
Savings deposits	31,407	- 79	+ 535	+ 1.73
Other time deposits†	31,222	- 180	+ 5,915	+ 23.37
Large negotiable CD's	13,185	- 149	+ 4,176	+ 46.35
Weekly Averages of Daily Figures	Week ended 2/1/78	Week ended 1/25/78	Comparable year-ago period	
<b>Member Bank Reserve Position</b>				
Excess Reserves(+)/Deficiency (-)	- 49	+ 14	+ 1	
Borrowings	26	12	1	
Net free(+)/Net borrowed (-)	- 75	+ 2	0	
<b>Federal Funds—Seven Large Banks</b>				
Interbank Federal fund transactions				
Net purchases (+)/Net sales (-)	+ 1,536	+ 1,546	- 95	
Transactions with U.S. security dealers				
Net loans (+)/Net borrowings (-)	+ 374	+ 765	+ 135	

\*Includes items not shown separately. †Individuals, partnerships and corporations.

Editorial comments may be addressed to the editor (William Burke) or to the author. . . .  
Information on this and other 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.