

The Inflation That  
May Not Stop?  
The Nation and  
District  
Manufacturers  
Two Faces of  
Bank Liquidity  
Foreign-Exchange  
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Markets



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**FEDERAL RESERVE BANK**

**BUSINESS REVIEW**

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# The Inflation That May Not Stop?

by Edward G. Boehne

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The current strategy against inflation has been aimed at first eliminating excess demand from the economy, and then keeping output short of capacity. American experience vouches for the appropriateness of this approach, for in the past, a slower paced economy has been enough to dampen inflationary fires. In the current assault on rising prices, there is no doubt that cooling an overheated economy was a *necessary* step in unwinding inflation. But with prices continuing to rise rapidly, the critical question now is whether the creation of excess capacity will also be *sufficient* this time around to choke off inflation. Or, are there elements in the current scene which may thwart the efforts of inflation-fighters and prevent history from repeating?

## STRATEGY AGAINST INFLATION

The rationale for the current strategy against rising prices is that *excess demand* initiated and fueled the current inflationary spiral, and that *excess supply* will reverse the current course and, in time, reduce the pace of inflation to tolerable levels. Chart 1 shows the relationship between aggregate demand and supply and rising prices.

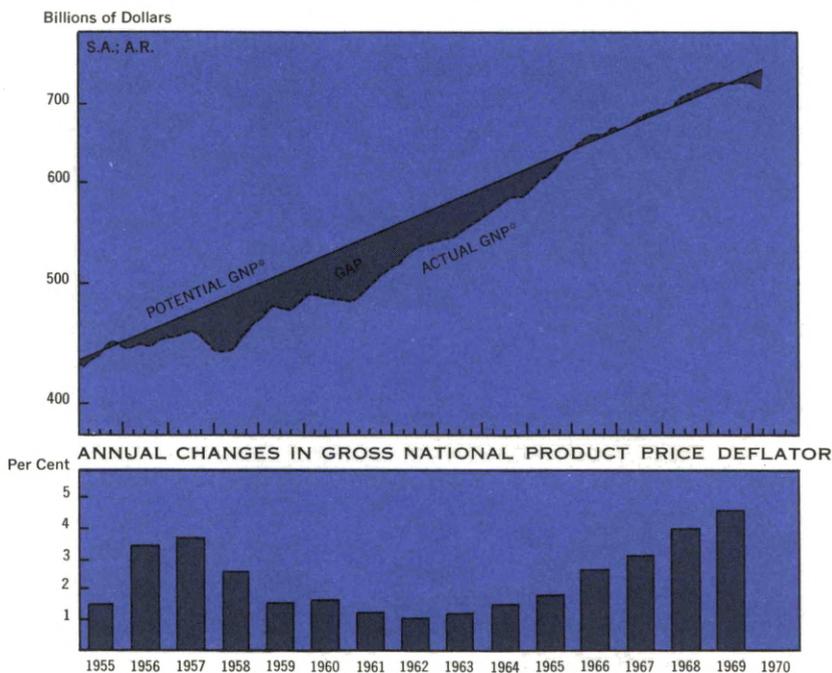
In the upper part of Chart 1, the economy's potential supply of goods and services is shown by the straight line. It slopes upward because the capacity of the economy to produce goods and service expands over time with the addition of better skilled workers as well as more efficient plant and equipment. The jagged line represents what consumers, business, government, and foreigners actually demand from the economy.

Whenever potential GNP exceeds actual GNP, excess capacity exists in the economy. In other words, what could have been supplied is more than what is actually demanded. In con-

CHART 1

Whenever productive capacity is strained, higher rates of inflation follow. Also, lower rates of inflation follow—often with a lengthy lag—periods of excess capacity.

ACTUAL AND POTENTIAL GROSS NATIONAL PRODUCT  
AND INFLATION (1958 DOLLARS)



trast, sometimes total demand is greater than what the economy can normally supply. During these periods, excess demand prevails in the economy.

For most of the period since 1965, the American economy has been plagued by excess demand. The result, as shown in the lower part of Chart 1, has been escalating inflation. By contrast, during the early part of the '60's, the economy was relatively free of inflation because of the presence of unused capacity. Hence, the

combined thrust of monetary and fiscal policies over the last 18 months has been to eliminate excess demand and to create excess capacity—but not too much excess capacity, because this would mean recession and socially unacceptable rates of unemployment. So the Game Plan calls for a small gap between actual and potential GNP which should spur a slow but steady easing of inflationary pressures. (See Chart 1.)

The anticipated chain of events goes something like this. As restrictive monetary and fiscal

policies take hold, total spending in the economy slows. As the sales pace is dampened, inventories build up and production schedules are cut back. With declining sales and production and rising costs, profits shrink. To cut costs, businessmen trim overtime and actually lay off some workers. With profits weakening, employers offer stiffer and stiffer resistance to rising wage demands. At the same time, a softening labor market makes workers willing to settle for less.

The result, if the Game Plan works, is a slowdown in wage increases; although, because of the momentum and severity of inflation, progress on the wage front is slow in coming. Finally, with excess demand eliminated and cost pressures subsiding, the inflationary spiral unwinds—although again progress is slow, but nevertheless tangible.

## THE WEIGHT OF HISTORY

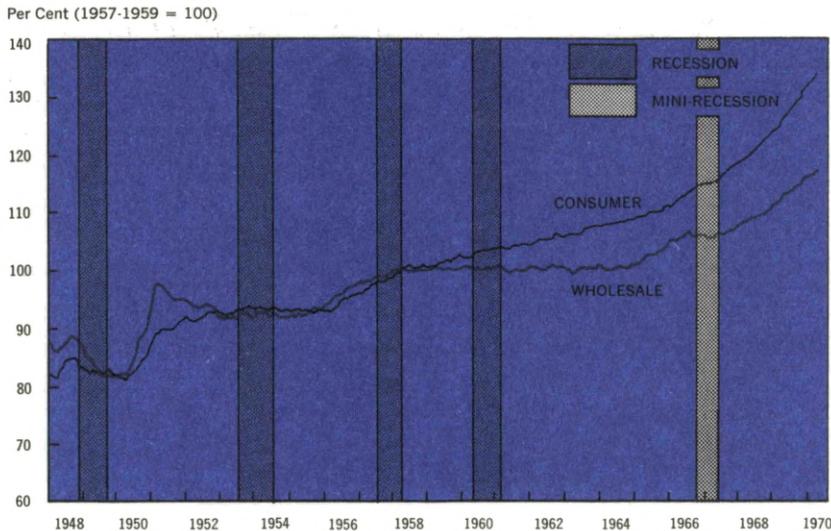
History is very much on the side of this slowdown strategy. No slowdown in the postwar period has failed to bring some relief from rising prices. As Chart 2 indicates, whenever the economy has slowed, prices—whether measured at the wholesale or consumer level—have either stopped rising, have risen less rapidly, or have actually declined.

There is often a lag, however, between the time the economy slows and prices respond. Prices, in other words, can be “sticky.” Why this rigidity? One reason is that in some industries a single firm or only a few firms control enough of the market to be able to exert considerable influence over prices. As profits decline, the response of these firms often is to raise prices, even if it means further drops in

**CHART 2**

Wholesale and consumer prices have either stopped rising, have risen less rapidly, or have actually declined during or after business slowdowns.

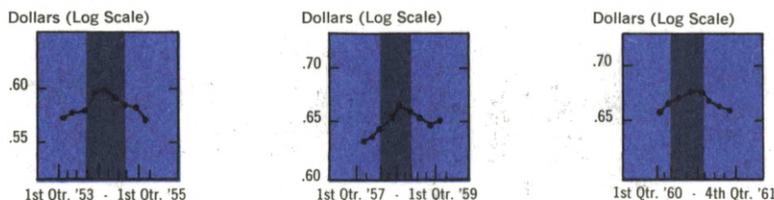
### PRICE TRENDS



Source: U.S. Department of Labor

## CHART 3

As recessions wear on, worker productivity begins rising and wage increases respond to softer labor markets. The result is that unit labor costs do decline—but typically the decline has considerably lagged the contractionary phase of post-war slowdowns.

LABOR COST<sup>\*</sup> PER UNIT OF REAL CORPORATE GROSS PRODUCT

Source: U.S. Department of Commerce  
\*Current Dollars

sales and production. But historically, sales fall faster than production. As goods pile up in warehouses and on store shelves, the climate for further price hikes becomes less favorable. Customers find that shopping around becomes more advantageous as “deals” become more available. Further, if price boosts persist, imports are encouraged and domestic producers come under additional pressure to hold the line on prices.

Still another reason why prices may not respond immediately to a slackening of demand arises from the cost side. As shown in Chart 3, labor costs per unit of output usually keep right on climbing even as the economy begins to contract. Only after considerable delay do labor costs begin to ease. Why? First, output per man-hour typically falls during periods of contraction because layoffs are usually not proportional to production cutbacks. Second, wage rates continue to rise. Workers locked into multi-year contracts during inflationary periods seek to catch up with previous inflation and to stay ahead of future price hikes.

But as the slowdown wears on, and indeed

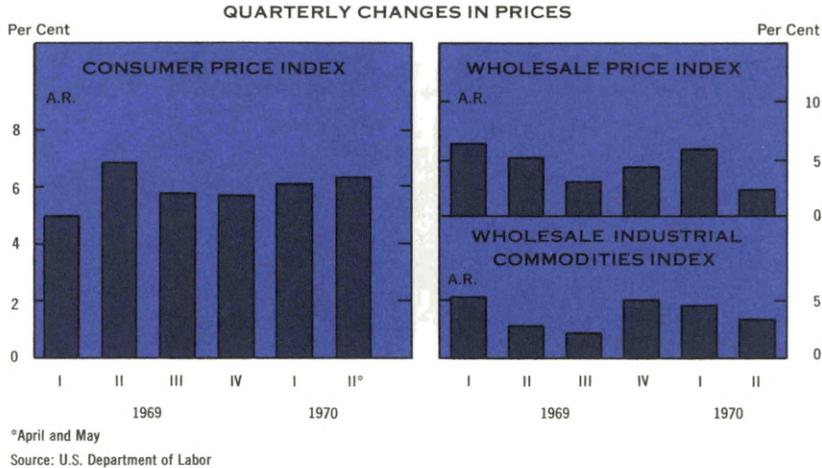
as the economy starts to recover, worker productivity begins rising again. Also, wage increases do respond to softer labor markets and easing of inflationary expectations. The result, again shown in Chart 3, is that labor costs do decline—but typically the decline has considerably lagged the contractionary phase of postwar slowdowns. Most of the relief from labor costs actually has come during the recovery phase.

## WILL HISTORY REPEAT?

Restrictive monetary and fiscal policies have slowed the economy, excess capacity prevails, and unemployment is rising. The stage is set for the classical unwinding of inflation. But so far there are few signs that history is repeating. Consumer prices continue to rise at about last year's pace (Chart 4). Largely because of increases in food supplies, price increases at the wholesale level have dropped off in recent months. However, prices for industrial commodities at wholesale—a critical measure of inflationary pressures—have shown no improvement.

CHART 4

So far there are few signs that inflation is responding to a slower-paced economy. Although wholesale prices have risen less rapidly in recent months, the pace of inflation for industrial commodities and consumer purchases has not abated.



Lack of tangible results to date raises some nagging thoughts that perhaps this time around inflation may not be licked with the classical cure. It is not that what monetary and fiscal authorities have done is wrong; it is that what they have done may not be enough or socially tolerable for a long enough period.

There is, first of all, the asymmetry of trying to cure the worst inflationary ill in twenty years with the shallowest slowdown of the postwar period. The rate of inflation has increased every year since 1963, and most dramatically since 1965 (Chart 1). The last time inflation became imbedded in the economic system, in the 1950's, the economy experienced three full-fledged recessions, with the unemployment rate reaching 7.5 per cent before inflationary psychology was finally rooted out. And judging from the intensity and duration of the current price spiral, the inflationary psychology now must certainly be as deeply implanted in the system

as it was in the 1950's—and perhaps even more so.

Moreover, while the level of unemployment sufficient to choke off inflationary psychology may be the same or even higher than it was a decade and a half ago, the nation's tolerance for unemployment has been sharply reduced. Social values now rival economic values. The focus has shifted from *how many* are unemployed to *who* are unemployed.

The table shows that when the overall unemployment rate rises 1.0 percentage point, for example, the rate of unemployment for teenagers on the average rises 1.4 percentage points; for women over 20 years of age, 0.8; and for men, 1.2 percentage points.

But in an age when social justice ranks high on the priority scale, the relative impact of higher unemployment on Negroes and whites is critical. The data leave little doubt who usually bears the brunt of rising unemployment; it

The burden of a slowdown is borne unequally. Negroes and teenagers bear the brunt of rising unemployment. On the average, when the total rate of unemployment rises 1.0 percentage point, Negro unemployment advances 1.8 percentage points.

**TABLE**

Average change in unemployment rates (percentage points) when the total rate of unemployment rises 1.0 percentage point:

<b>Total</b>	
Men, 20 years and over	1.2
Women, 20 years and over	0.8
Teenagers, 16 to 19 years	1.4
<b>White</b>	0.9
Men, 20 years and over	1.0
Women, 20 years and over	0.7
Teenagers, 16 to 19 years	1.5
<b>Negroes</b>	1.8
Men, 20 years and over	2.6
Women, 20 years and over	1.3
Teenagers, 16 to 19 years	0.8

Source: U. S. Department of Labor.

is the black man. For every 1.0 percentage point rise in the total unemployment rate, the Negro rate of unemployment on the average increases 1.8 percentage points—double the 0.9 for whites. When the white breadwinner's—men over twenty—unemployment rate goes up 1.0 percentage point, the unemployment rate for his Negro counterpart jumps 2.6 percentage points. Clearly, the burden of a slowdown is borne very unequally, and this uneven impact places a major social constraint on the severity of any economic slowdown as a remedy for inflation.

**Depth vs. Duration.** A way around this social constraint on the level of unemployment is to trade the sharper, shorter slowdowns of the '50's for a milder, longer one. In other words, keep the rate of unemployment within social

tolerances, but still less than full employment. In terms of Chart 1, this means avoiding the high unemployment rates of 1957-58 and 1960-61. Let actual output fall short of potential, but only by a modest amount. In this climate, social irritations would be minimized, but economic conditions favorable towards disinflation would prevail. Then, we could simply wait until inflation fades.

For this gradual approach to work, though, monetary and fiscal policies have to tread a very narrow path between too much ease and too little restraint. A deviation in either direction would accelerate the momentum of inflation or cause unacceptable levels of unemployment.

Assuming policymakers are able to tread this difficult path, the national patience may have to be patient, indeed. The recession remedy for inflation is an old cure, but a gradual slowdown followed by a planned period of modest excess capacity is a major variation on this old prescription. And with inflation as stubborn as it appears to be, we may have to wait a considerable time for meaningful results.

How long we may have to wait for tangible progress and how long the public is willing to wait for it, therefore, are two key variables in the current strategy against inflation. There are no hard answers to either question. But if the national patience grows thin and inflation subsides too slowly, time could become as much a constraint on policymakers as the rate of unemployment.

**Enter Incomes Policy.** The increasing awareness of this time constraint has prompted a growing chorus of voices to suggest an incomes policy as a supplement to monetary and fiscal restraint. Although stopping well short of direct wage and price controls, many advocates sug-

gest an incomes policy that would include some sort of wage and price guidelines. Enforcement would depend primarily upon the sensitivity of businessmen and workers to adverse public attention as well as whatever direct pressure government could bring to bear on inflationary wage-price decisions. The hope is that an incomes policy of this type, acting as a voluntary check on wage and price boosts, would shorten the transitional period between economic slowdown and a slowdown in the rate of inflation.

Even if this transitional period were not materially shortened, the introduction of an incomes policy conceivably still could have a placebo effect; people would just feel better psychologically knowing that "more" is being done to curb rising prices. More importantly, while the nation waits to ascertain the effectiveness of an incomes policy, a slack economy has more time to yield significant relief from inflation.

Of course, there could be some longer run costs to this approach, particularly if inflation and the threat of inflation persist. One cost, certainly, is that wage-price guidelines could escalate into wage-price controls. A second and perhaps not so obvious cost is that to employ an incomes policy now may preclude its more appropriate use in the future. For example, suppose that cost-push pressures now are just too strong to be checked by wage-price guidelines. Some months from now, therefore, the guideline approach is branded a failure and is junked. Later on, though, when cost-push pressures have subsided, an incomes policy may be able to provide just the needed assist for monetary and fiscal policy to maintain price stability. But because of past "failure," guidelines are rejected. In other words, an ill-advised use of an incomes

policy now might preclude its profitable use in the future.

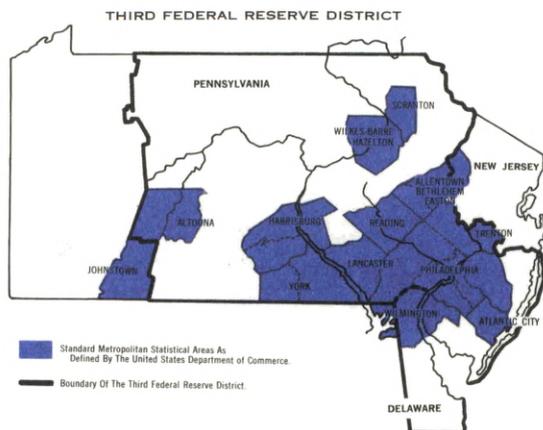
On balance, though, particularly if one remains confident in the stabilizing power of monetary and fiscal measures, an incomes policy is still attractive. At best, an incomes policy might end inflation more quickly, if only marginally so; even if this were not the case, it would soothe public impatience for awhile and allow monetary and fiscal policies additional time to work their effects through the economy. In either event, an incomes policy lessens the time constraint and, therefore, in the short run at least, improves somewhat the prospect of bringing inflation to heel.

**Assessing Overall Odds for Success.** Social constraints preclude high rates of unemployment which in the past were used to control serious inflation. These social constraints, in turn, mean that the latitude for maneuver on the part of economic policymakers is diminished—and, hence, the chance for them to err is greater. Moreover, the current strategy may be hemmed in by a time constraint, although an incomes policy could allow monetary and fiscal policies a little more time to check rising prices. Nonetheless, the nation is growing impatient with inflation.

Despite these obstacles, however, history and traditional economic logic remain very much on the side of the current strategy for bringing inflation under control. Certainly, without the elimination of excess demand, inflationary pressures could not possibly be dampened. But whether the current slowdown, even with the addition of an incomes policy, will be enough to reduce the pace of inflation to an acceptable level is still less than a shoo-in.

# The Nation and District Manufacturers

by Richard W. Epps



It seems that on every street corner one finds an economist prognosticating the future of the economy. This is evidence not so much of the surfeit of economists, however, as of the importance of the outlook for the economy. Many business decisions—on production, on investment, on hiring—are based upon bets about the future state of the economy. Forecasts, however, usually are national in scope. Businessmen dealing in regional markets are left largely to their own devices in deciding what the national outlook implies for their own region.

Businessmen in one large east coast region—the Third Federal Reserve District—may indeed have an easier time of forecasting than do businessmen elsewhere. Fluctuations in the region, including markets served by firms in at least 13 metropolitan areas, appear to mirror closely those in the nation. Over the last 15 years, most local fluctuations in output by manufacturing, the region's most volatile sector, corresponded with national fluctuations. District and national swings in output occurred at nearly the same time and were about the same relative size.

## MANUFACTURING—THE VOLATILE SECTOR

Swings in activity of manufacturers have an impact upon the District disproportionate to the size of manufacturing. Although factories account for less than a third of this region's employment, they are associated with more than two-thirds of fluctuation in total employment. One reason is that manufacturing is highly volatile. During the last 15 years, employment in manufacturing in this District has fluctuated over seven times more than has employment in other industries. Another reason is that reductions in

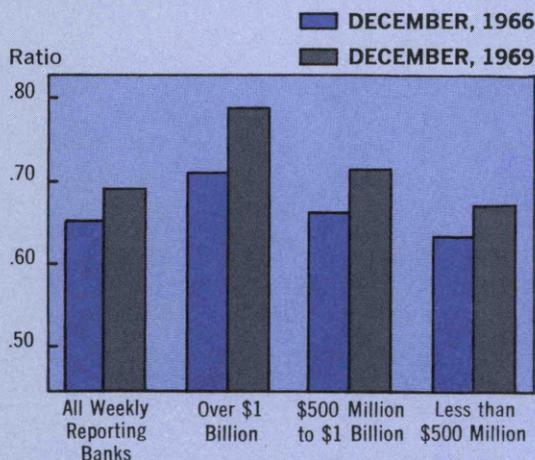
*(Continued on page 12)*

# Two Faces of Bank Liquidity\*

Monetary restraint in response to a fast-paced economy has many people concerned over the liquidity of our economy. However, liquidity often puts on more than one face for us to see. And, one face may be less ominous than the other. These two different faces nowhere are more apparent than at the nation's large commercial banks.

The traditional standard of bank liquidity is the ratio of loans to deposits. This measure clearly shows a deterioration in liquidity of large banks when December, 1969, is compared to December, 1966, the end of the last period of monetary restraint. Among the largest of the large (banks with deposits over \$1 billion), the decline in this measure of liquidity has been especially sharp.

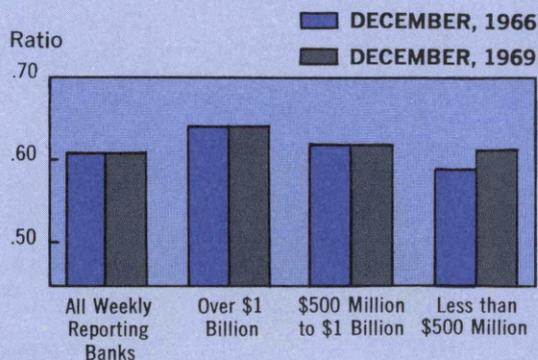
## LOAN TO DEPOSIT RATIOS OF WEEKLY REPORTING BANKS BY DEPOSIT SIZE



NOTE: Ratios for the different groups of banks are averages of individual bank ratios. Dates are for December 21, 1966 and December 24, 1969. These dates were selected to exclude the influence of year-end financial developments.

But when banks make loans or investments, they need not be overly concerned whether the funds come from deposit or nondeposit sources, as long as they can be counted on to support lending activity. Since Euro-dollar borrowings, federal funds, and commercial paper provide funds to banks which may be no more volatile than funds obtained from many depositors, a more appropriate measure of liquidity might be the ratio of loans to *all* liabilities, including these nondeposit sources of funds. When viewed in this way, there was little difference in the liquidity position of most large banks between the end of 1966 and the end of 1969.

## RATIOS OF LOANS ADJUSTED TO LIABILITIES ADJUSTED OF WEEKLY REPORTING MEMBER BANKS BY DEPOSIT SIZE

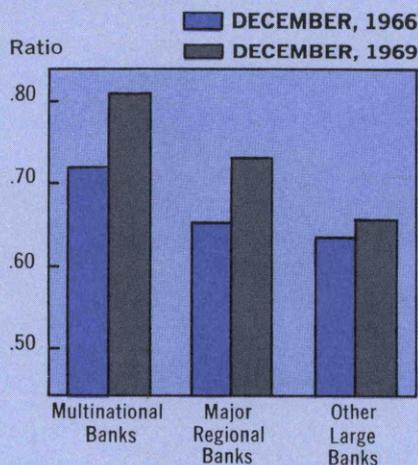


NOTE: Data for 1966 are ratios of total loans to total liabilities. For 1969, ratios are total loans adjusted for loan sales to bank holding companies and affiliates to total liabilities including commercial paper issued by bank holding companies and affiliates.

\* Based on data contained in remarks by Andrew F. Brimmer, Member of the Board of Governors of the Federal Reserve System, entitled "Liquidity Demands, Fiscal Policy, And The Tasks of Monetary Management," given before the 17th Annual Monetary Conference of the American Bankers Association on May 18, 1970, at Hot Springs, Virginia.

The same picture emerges when the same large banks are labeled according to the market they serve. The traditional measure, the loan to deposit ratio, portrays deterioration in the liquidity position of multi-national and major regional banks.

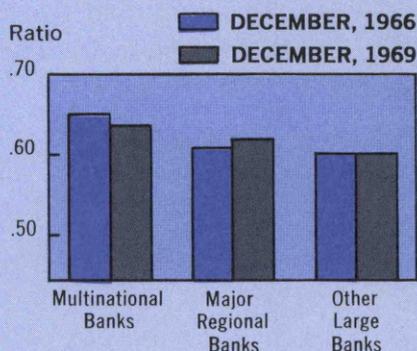
### LOAN TO DEPOSIT RATIOS OF WEEKLY REPORTING BANKS BY TYPE OF BANK



NOTE: Multi-national and major regional banks are identified by a number of criteria including size, volume of business loans, importance in the Federal Funds market in particular and the money market in general, volume of foreign lending, and participation in the Euro-dollar market. Major regional banks, however, are generally smaller than multi-national banks and each region of the country was represented.

But, when their growing reliance on non-deposit sources of funds is taken into account, liquidity remains essentially unchanged between the two dates.

### RATIO OF LOANS ADJUSTED TO LIABILITIES ADJUSTED OF WEEKLY REPORTING MEMBER BANKS BY TYPE OF BANK



To some observers, the loan to deposit ratio is an outmoded relic of the past. To others, the ratio of loans to all liabilities, while it may reflect a changed view of banking, is a statistical face-lift which merely conceals the severe liquidity stress under which banks currently operate. It may be that both views contain some truth. Liquidity is a difficult concept to define, and probably no single measure is adequate for all purposes. Yet, while now is not the time to be complacent, it would seem that bank liquidity may not be as bad as many people fear.

(Continued from page 9)

spending by manufacturers and their workers caused by production slowdowns affect the level of activity in nonmanufacturing sectors. In Philadelphia, for example, more than 30 per cent of variation in nonmanufacturing employment over the last 15 years is associated with movements in factory employment.

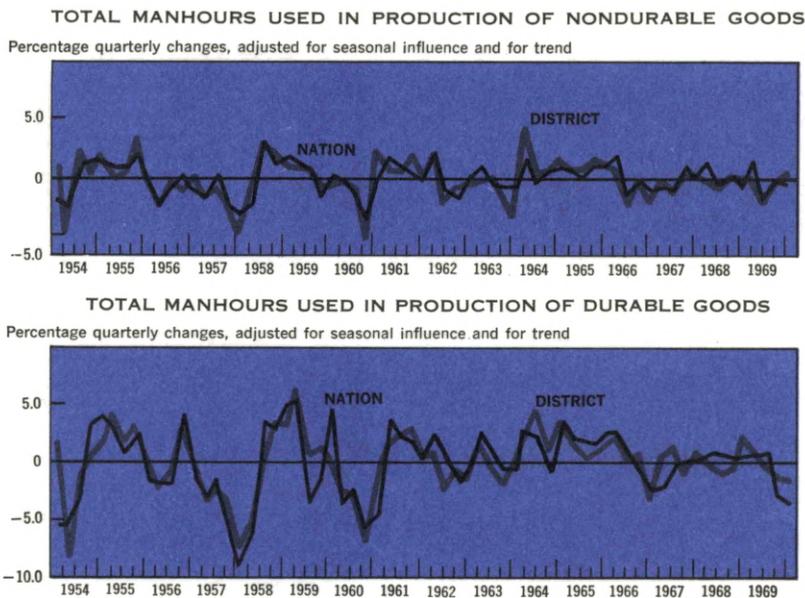
### WHY SO VOLATILE?

Manufacturing activity tends to fluctuate so much because of the nature of its product and production process. Although buyers cannot delay expenditures across-the-board, they can postpone their purchase of many manufactured goods. The old car can be made to run for

another year; the too-small refrigerator can remain stuffed a while longer. But food must be purchased regularly, and illnesses must be treated when they strike. So, when national monetary or fiscal policy begins to hold down the growth of income, manufacturers are the first to lose the buyer's dollar.

The reaction of producers to declining demand causes a double-barreled impact. Unlike many nonmanufacturing firms, which produce output as needed, manufacturers maintain substantial inventories of finished goods and goods-in-process. When sales and production decline, these inventories quickly begin to look excessive and provide further motivation for a plunge in output.

CHART 1  
DISTRICT MANUFACTURING STAYS IN STEP WITH NATIONAL MANUFACTURING



Source for national data: SURVEY OF CURRENT BUSINESS, United States Department of Commerce

This characterization fits manufacturers regardless of location—in this District or elsewhere. Insofar as most major fluctuations in buying are caused by national phenomena such as monetary or fiscal policy, manufacturing in this District may be expected to display about the same movements as does production in other regions. There is, then, a strong reason to suspect that, relative to national movements, factory owners here find themselves reducing their output at about the same time and in about the same proportion as do manufacturers across the nation.

As shown in Chart 1, manufacturers in this region do follow nearly the same course as their counterparts elsewhere. In fact, association between District movements in manufacturing activity and national movements is strong, with at least 70 per cent of local fluctuations in out-

put corresponding to national fluctuations in production. (See Table 1.) But the relationship between District and nation is not exact. Production of nondurable goods in the District appears to fluctuate somewhat more than national production of nondurable goods—an average quarter-to-quarter change of 1.6 per cent for the District and 1.1 per cent for the nation. Local durables production, in contrast, appears somewhat more stable than national production of durables—a 2.5 per cent quarter-to-quarter change for the District and 2.9 per cent level for the nation.

An additional contrast between this region and the nation is found in the timing of fluctuations in production. As shown in Table 1, while most national and District swings coincide, there is a slight tendency for the activities of District producers to lag those of national producers.

**TABLE 1**  
**ASSOCIATION OF MANUFACTURING IN THE DISTRICT**  
**AND IN THE NATION, 1954-1969**

The table presents the results of a statistical analysis of the association between the quarterly changes in manhours in the District and in the nation shown in Chart 1. Columns 1 through 5 list the percentage change in District manhours associated with a 1 per cent change in manhours used by national manufacturers. Each of the five columns corresponds to a different timing of response. Column 1, for example, lists the District increase in one period associated with a national increase in manhours two quarters earlier. Column 6 lists the total effect of a 1 per cent change in national manhours.

District Industries	TIME OF NATIONAL CHANGE*						District Variation Accounted For
	Two Quarters Earlier	One Quarter Earlier	Same Quarter	One Quarter Later	Two Quarters Later	All Quarters	
Durables Mfg.	.14	.14	.63	.11	.02	1.04	80.2%
Nondurables Mfg.	.00	-.06	<u>1.02</u>	.11	.01	1.08	70.6
<b>UPTURNS</b>							
Durables Mfg.	.22	.24	.83	.12	-.19	1.22	84.2
<b>DOWNTURNS</b>							
Durables Mfg.	.12	.04	<u>.52</u>	.10	.17	.95	84.2

\*Underlined values are statistically significant at least at the .05 level.

## LOCAL FLAVOR

Two principal local factors underlie these differences between District and nation—the markets of local industries and the competitiveness of local industries.

**1. Industrial Markets.** Unlike the output of local government, medicine, education, and many more other nonmanufacturing industries, most products of manufacturing industries can be transported and then traded in national markets. Because of these ties with widely dispersed markets, we may expect manufacturing industries in this District to experience the same forces as do their counterparts all over the nation.

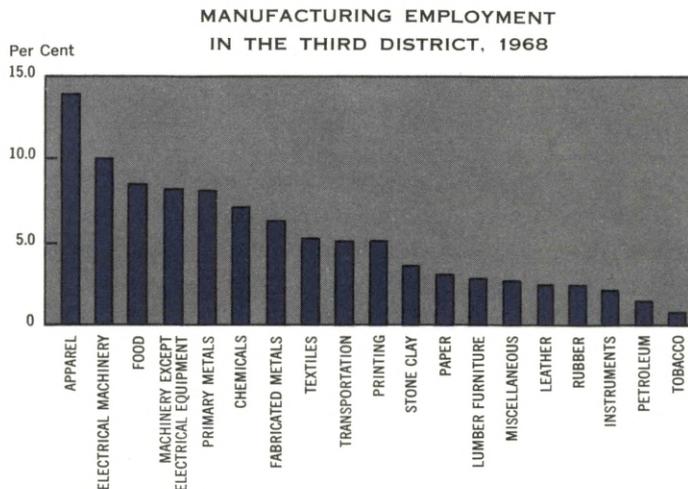
However, local factors do enter. Aggregate manufacturing consists of many heterogeneous industries, each serving a product market with its own cyclical pattern. Areas with a relatively greater concentration of the more cyclical sorts

of industries will be more unstable. In addition, plants within a given industry may sell in national markets when located in one region, but trade only in local markets when situated in another region. Although difficult to document, these patterns of selling will influence the degree to which the production of a local industry reflects that of its national counterpart. Two kinds of market considerations, then, help set the local pattern of production—the composition of industries and the size of market served by each industry.

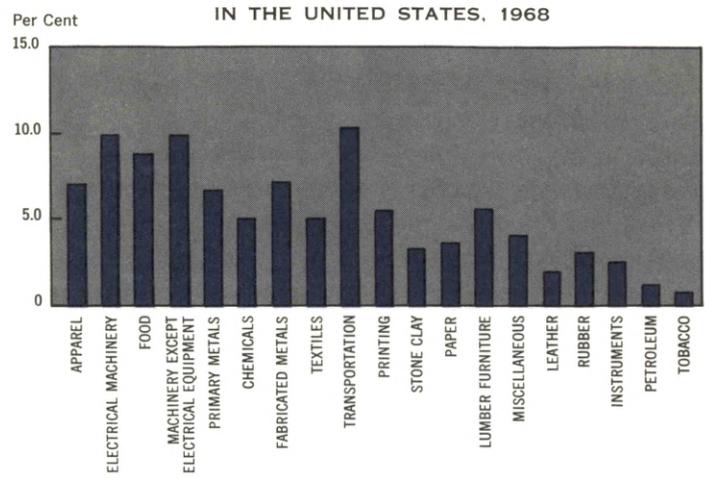
The local composition of industries may indeed underlie some of the contrasts between the Third Federal Reserve District and the nation in fluctuations of output of manufacturing. There are some differences between the structure of industries located in this District and that of industries in the nation. (See Chart 2.) In particular, the District has a heavier-than-normal



CHART 2  
A MAJOR REASON FOR THE CORRESPONDENCE IS  
SIMILARITY OF INDUSTRIAL STRUCTURE



MANUFACTURING EMPLOYMENT  
IN THE UNITED STATES, 1968



Source: 1969 BUSINESS STATISTICS United States Department of Commerce

concentration of apparel producers and steel mills, but is light on food processors and manufacturers of transportation equipment. Apparel, a member of the nondurable class, is more volatile than food processing and this may cause the nondurables group in the District to out-rotate the national industry. Conversely, steel production is somewhat less cyclical than production of transport equipment. This may cause the relatively stable local record among the durables industries.

**2. Competitiveness of Local Firms.** The competitiveness of local producers may also alter the relationship between this District and the nation. If costs of production in factories located in this region are higher than those in factories situated elsewhere, or if local producers incur inordinately high costs of transportation in getting their goods to market, local factories will tend to operate at peak capacity only when demand in the nation is at its highest. More com-

petitive producers would bid away business when demand is less than the national capacity of the industry.

Although competitiveness is difficult to observe directly, its effects may be observed. Output of plants in less competitive regions will tend to decline earlier than that of factories elsewhere in a national downturn and to rise later in an upturn. As shown in Table 1, the District tends to follow this pattern, but only partially. Local production does lag national activity on upturns. It stays in step with the nation on downturns, however.

**PROGNOSIS**

While the production pattern of individual firms and industries in this District may differ from that of their counterparts across the nation, there is a strong thread of similarity between the experiences of producers here and elsewhere. Taken in the aggregate, over 70 per cent of the

swings in District production are associated with fluctuations in national production. This similarity could be attributable to chance, but that seems doubtful. The composition of industries here is not much different than that in the nation. Furthermore, industries in the District probably feel the same influences in the markets for their product here as do industries elsewhere. There is good reason, then, to suppose the strong relationship found between District and national production will continue.

The implications are twofold. First, businessmen and community leaders interested in the outlook of local manufacturing may rely, with confidence, on national projections. National forecasts tend to be more authoritative than local ones, because more is known about the national economy and because most economic policies with near-term effect are set at the national level. Second, for the present period, it means that the District may expect to share the brunt of the current slowdown.

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### MEASURING INDUSTRIAL OUTPUT

Most of the influence of the nation upon District manufacturers runs along final product lines. National policy causes a reduction in demand for output of manufactured goods, and District producers feel some of this pinch. In seeking to measure the relationship between District and national producers, therefore, one would preferably deal in measures of output. Unfortunately, information about levels of output does not exist for subnational areas. Records of "value-added" by manufacturers do exist on an annual basis, but for too few years to allow an examination of the relationship between District and nation.

Therefore, proxies must be used in place of output measures—proxies relating to inputs into production. In this article we have used manhours involved in production. The adequacy of this proxy depends upon the stability of the productivity of labor. If labor productivity were constant, manhours of labor used in production would be an exact proxy for output. In fact, the productivity of labor tends to vary over business cycles—often increasing on upswings and decreasing on downswings. Manhours will tend, therefore, to understate the movements in output, and may tend to lag the turns of output. In order to offset this bias, manhours have been used to measure output for both the nation and for the District.

For the nation, for which indices of both output and manhours are available, fluctuations in output account for better than 90 per cent of the variation in manhours. (See Table.) And manhours show a one-to-two quarter lag in their response to changes in output.

**ASSOCIATION OF MANHOURS USED BY MANUFACTURERS AND THE FEDERAL RESERVE INDEX OF INDUSTRIAL PRODUCTION, FOR THE NATION, 1954-1969**

Columns 1 through 6 list the percentage change in manhours associated with a 1 per cent change in industrial production. Column 7 lists the total proportion of variation of manhours associated with variation in industrial production.

**TIME OF CHANGE IN INDUSTRIAL PRODUCTION\***

Industry	Two Quarters Earlier	One Quarter Earlier	Same Quarter	One Quarter Later	Two Quarters Later	All Quarters	Variation in Manhours Accounted For
Durables	.06	<u>.13</u>	<u>.70</u>	.04	0	.95	92.6%
Nondurables	<u>.14</u>	.05	<u>.91</u>	.09	-.07	1.15	96.3

\*Underlined numbers are significant at .05 level.

### VALUE-ADDED TAX

The value-added tax is again in the news. To help clarify issues, you may want to read "A Balance Sheet for the Value-Added Tax," by Edward G. Boehne. First published in the June, 1969, *Business Review*, this article describes and assesses the arguments for this form of corporate taxation. To secure copies of this selection, address your request to Public Services, Federal Reserve Bank of Philadelphia, Philadelphia, Pennsylvania 19101.

This is the second in a series of three articles which deal with the balance of payments, foreign-exchange markets, and problems and proposals for reforming the international monetary system. The series is designed for the general reader rather than the expert in international economics.

## Foreign-Exchange and Euro-Dollar Markets

by Clay J. Anderson\*

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If a single currency were used in all international transactions, effecting payment would be as simple as in domestic trade and finance. Receipts from abroad would enlarge deposits denominated in the currency; payments abroad would reduce them.

The problem is not so simple, however, when a number of national currencies are involved. An American firm exporting automobiles to France wants to be paid in dollars; the French importer, however, does business in francs. An English importer of American goods sells them for sterling but needs dollars to pay the United States exporter. An American importer of French goods sells for dollars but needs francs to pay the French exporter. In a large volume of international transactions, receipts and payments involve a currency which the participant does not use domestically. Effecting payment requires exchanging one currency for another.

Purchases and sales of currencies of the major trading nations total hundreds of millions of dollars every business day. Markets in which foreign currencies are bought and sold are commonly referred to as foreign-exchange markets.

This article deals with the foreign-exchange market in the United States, factors influencing foreign-exchange rates, and a related but different type of market—the Euro-dollar market.

### FOREIGN-EXCHANGE MARKET

A foreign-exchange market has the principal features of any market: buyers and sellers, facilities for bringing the two together, and stock-in-trade, that is, things which are actually bought and sold.<sup>1</sup>

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<sup>1</sup> For a more complete analysis of the foreign-exchange market in the United States, see Alan R. Holmes and Francis H. Schott, "The New York Foreign-Exchange Market," a booklet published by the Federal Reserve Bank of New York.

**Institutional Structure.** A foreign-exchange market is not an organized market such as a stock or commodity exchange. There is no single marketplace where buy and sell orders are executed; there are no meeting places where buyers and sellers assemble to arrange transactions. Instead, foreign-exchange transactions are consummated by telephone and, in the case of overseas transactions, mainly by cable and mail. For simplicity of exposition, we can break down the market structure into several main segments.

First are the dealers, mainly commercial banks, who conduct transactions with business firms and individuals desiring to buy or sell bills of exchange denominated in a foreign currency. A few specialized dealers limit their activities mainly to foreign bank notes. But transactions for any sizable amount are ordinarily in terms of bank deposits. Consequently, customers wanting to buy or sell foreign exchange usually go to their own commercial bank. Customers selling a bill of exchange are paid by credits to their deposit accounts; purchasers of foreign exchange make payment by checks on their deposit accounts.

Banks buying these foreign bills acquire instruments payable abroad in a foreign currency. They build up foreign currency balances abroad. The banks can draw on these balances to sell foreign exchange to their customers.

Most commercial banks do not want to maintain foreign currency deposits abroad, which they must do if they are to operate directly in the foreign-exchange market. They prefer to handle such transactions through a large correspondent which has a foreign-exchange department and maintains deposit balances abroad. Thus, the bulk of the transactions arranged by commercial banks in various financial centers is funneled into the primary market in New York.

Only a small number of banks, mostly in New York, maintain deposits abroad in the principal foreign currencies. Several branches and agencies of foreign banks in New York City are also active participants in the foreign-exchange market. The bulk of the foreign-exchange business, however, is accounted for by about a dozen large New York commercial banks.

A second segment of the market is the foreign-exchange broker. As already noted, purchases of foreign exchange by banks dealing directly in the market build up their foreign currency balances abroad; sales of foreign exchange draw them down. Banks build up balances abroad when purchases exceed sales and reduce balances when purchases fall short of sales. Banks dealing in foreign exchange want to maintain working balances in the principal currencies sufficient for day-to-day operations; however, because of the risk of rate fluctuations, they try to avoid balances in excess of operating needs. Frequent adjustments in foreign-exchange positions are therefore necessary.

An important medium for adjusting foreign-exchange positions is the inter-bank market in New York. For example, at the end of the day, some banks might have a larger position in sterling than they want; others might have a shortage. Instead of dealing directly to adjust their positions, banks use the services of foreign-exchange brokers. Brokers maintain close contact with the foreign-exchange departments of commercial banks in order to be able to put banks desiring to sell in touch with those wanting to buy a particular currency. For each transaction he arranges, the broker receives a small commission, paid by the seller. Banks prefer dealing through a broker because of convenience and time saved, and because brokers will not reveal names of banks wanting to sell or buy

until a transaction is arranged. In a highly competitive market, there may be advantages in maintaining secrecy as to a participant's position in foreign currencies.

A third segment of the market is transactions with foreign banks. Banks cannot always fully adjust their positions in the New York inter-bank market. Sometimes total purchases in the New York market may exceed total sales of certain foreign currencies or vice versa. In that event, practically all of the participating banks may have excess balances or shortages at the same time. If sterling positions are deficient, New York banks may turn to their counterparts in London to buy sterling. Likewise, London banks may be short of dollars and, therefore, be glad to exchange sterling for dollars. Foreign-exchange positions are thus adjusted primarily in an inter-bank market—via transactions with other domestic banks and with banks abroad.

The foreign-exchange market may also be classified in terms of the foreign currencies traded, that is, markets for sterling, Canadian dollar, mark, and Swiss franc. The volume of activity in a currency depends on demand for it and supply available for sale.

The volume of activity in sterling is largest among the markets for individual currencies in New York. The broad market in sterling reflects a substantial volume of trade, service, and financial transactions with the United Kingdom, and use of sterling in transactions with a number of other countries, especially those in the sterling area. Next in size, perhaps, is the market in the Canadian dollar. Trade, travel, and financial activities between the United States and Canada create substantial demand for and supplies of the Canadian dollar. There are also sizable markets in New York for the German mark and Swiss franc.

Less active markets exist in a number of other foreign currencies, such as the French franc, Dutch guilder, Italian lira, and Japanese yen. Inasmuch as the large commercial banks in New York maintain deposit balances in many foreign countries, and many foreign banks, in turn, maintain dollar balances in the United States, it is possible to buy or sell practically any foreign currency.

**Stock-in-Trade.** What is actually bought and sold in a foreign-exchange market? The bulk of transactions is in bank deposits denominated in foreign currencies; that is, the transaction results in the transfer of a specified amount from the deposit balance of the seller to that of the buyer. For example, an importer in New York desiring to make payment in London goes to his bank and buys a certain amount of sterling; the New York bank authorizes its correspondent in London to transfer the amount from its deposit account to that of the company or bank specified by the importer. The transaction is effected by the transfer of sterling from one deposit account to another in one or two banks in London.

Deposit transfers arising from foreign-exchange transactions are usually authorized by cable because payment is effected more promptly. Some transfers, however, are authorized by mail. Use of air mail has drastically reduced the time formerly required in effecting payment by sea mail.

Perhaps our New York importer prefers to send his payment directly to the English exporter. If so, he buys a sterling draft from his New York bank for the agreed amount and sends it to the exporter. The draft is an order by the New York bank, drawn on its deposit in a London bank, to transfer the specified amount from its account to the account of the exporter or his bank. In either case, payment is effected

by a deposit transfer from the New York bank's balance in the London bank to the exporter's bank.

Drafts, or bills of exchange as they are commonly called, are still used in arranging payment for exports. A United States exporter selling goods to an importer in London may, as part of the agreement, draw a draft on the importer's bank for the amount of the sale. The importer, of course, would first have to arrange for his bank to pay or accept the draft. The exporter draws the draft, according to the terms of the agreement, and sells it to his bank which credits his deposit with the dollar proceeds. The bank then sends the draft directly, or through its correspondent, to the bank on which it is drawn for payment. The final result is an increase in the exporter's dollar deposit in his bank for the proceeds of the draft and a corresponding increase in the purchasing bank's sterling deposits abroad. The importer's balance in his bank would be reduced similarly.

A draft or bill of exchange may be payable on sight or at a specified future date. If the latter, it must be "accepted" by the bank or business firm on which it is drawn—acceptance represents agreement to pay at the time specified. Time bills, if accepted by a bank, are known as bankers' acceptances; if accepted by business firms, as commercial or trade acceptances. Dividend checks and interest coupons payable in foreign currencies are similar instruments traded in the foreign-exchange market.

Foreign paper currency and coin are also bought and sold, but the volume of trading is small. Travelers going abroad are an important source of demand; travelers returning from abroad are a source of supply.

**Buyers and Sellers.** Buyers and sellers of foreign exchange in the United States consist

of a large number of business firms and individuals engaging in a great variety of transactions with their counterparts in foreign countries. A large part of our exports and imports is invoiced and paid in dollars; hence, many foreign-exchange transactions involved in our foreign trade bypass the United States market. The exchange of foreign currencies for dollars is made mostly in foreign-exchange markets abroad rather than in the United States.

The supply of foreign exchange offered for sale in the United States market comes from several sources. Payment for some of our exports is still effected by means of drafts drawn on foreign banks and payable in foreign currencies, as already stated. Such drafts are sold to United States banks or other foreign-exchange dealers. Drafts payable in foreign currencies are sometimes drawn in payment of securities sold abroad and by United States companies remitting interest, dividends, and profits from overseas branches and subsidiaries. Foreign tourists and visitors in the United States may cash travelers' checks payable in foreign currencies or draw drafts in foreign currencies under letters of credit. Speculators may sell foreign exchange purchased previously, and, of course, United States banks which maintain balances in foreign currencies abroad also sell foreign exchange to meet demands of their customers.

Basically, the demand for foreign exchange comes from those who need to make payment abroad. American importers buy drafts to pay for goods invoiced in foreign currencies. This is still a common method of payment in certain commodities, such as rubber, jute, and tin, which are often invoiced in sterling, and imports of Swiss watches, usually invoiced in Swiss francs. Other sources of demand in the United States for foreign exchange are investors desir-

ing to pay for securities purchased abroad; United States companies remitting interest, dividends, and profits on funds borrowed from abroad; American tourists traveling abroad; agencies of foreign banks desiring to return funds previously transferred here; and speculators who buy foreign currencies expecting to sell them later at a higher price.

The mechanics of making payment should not obscure the fact that international transactions result in the exchange of one currency for another. United States payments abroad supply dollars to foreigners—they result in the conversion of dollars into foreign currencies or transfer the ownership of dollars to foreigners. Receipts from abroad (foreign payments to the United States) result in an increase in foreign balances owned by Americans or a reduction of dollar deposits owned by foreigners. Therefore, a net deficit in the United States balance of payments tends to build up deposits owned by foreigners in United States banks; a net surplus tends to build up our deposits abroad in foreign currencies.

## FOREIGN-EXCHANGE RATES

Foreign-exchange rates are prices—prices of foreign currencies expressed in a country's own money. The following quotations (in dollars) are selling prices for cable transfers; i.e., "spot rates," for delivery in one or two days. Buying prices are slightly lower. The difference between buying and selling price is the dealer's income for handling the transaction. No commission is charged. The par value of the foreign currency in terms of the United States dollar is given above in parenthesis.

Practically all nations belong to the International Monetary Fund and, as members, agree to maintain the market rate of exchange within 1 per cent above and 1 per cent below par.<sup>2</sup> Market rates of exchange fluctuate within this narrow band in accordance with changing supply-demand relationships. Rate fluctuations during a day are typically very narrow—only a small fraction of a cent. Increased demand for sterling, for example, might nudge the market

<sup>2</sup> Some countries maintain market rates for their currencies within a narrower band.

FRIDAY, APRIL 10, 1970		
Selling prices for bank transfers in the U. S. for payment abroad, as quoted at 4 p.m. (in dollars):		
Country and Par Value	Friday	Previous Day
Canada (Dollar, .925)	.9320	.9321
Great Britain (Pound, 2.40)	2.4062	2.4057
30-Day Futures	2.4052	2.4049
90-Day Futures	2.4029	2.4029
Australia (Dollar)	1.1230	1.1227
New Zealand (Dollar)	1.1260	1.1257
South Africa (Rand)	1.4035	1.4035
Austria (Schilling, .0384615)	.0388	.0388
Belgium (Franc, .02)	.020125	.020125

Source: *The Wall Street Journal*, April 13, 1970.

price from \$2.3985 to \$2.399; an increased supply might lower it to \$2.398. More persistent shifts in demand-supply forces, however, may lift the market rate to the "ceiling" or lower it to the "floor," that is, the support levels above and below par value.

The balance of payments reflects the basic supply-demand forces influencing the exchange rate for a nation's currency. As explained in the previous article, the United States' persistent balance-of-payments deficit put a growing supply of dollars at the disposal of foreign holders.<sup>3</sup> The supply tended to exceed demand for dollars in foreign-exchange markets abroad. Dollars tended to be cheap in terms of foreign currencies; alternatively, the price of foreign currencies tended to be high in New York.<sup>4</sup>

A balance-of-payments surplus would have the opposite effects. An excess of receipts over payments would create a strong demand abroad for dollars (or a large supply of foreign currencies in New York). The price of the dollar in foreign-exchange markets would tend to rise; prices of foreign currencies in New York would fall.

Seasonal and temporary factors also influence day-to-day foreign-exchange rate fluctuations. A seasonal rise in exports or other foreign receipts may weaken market rates of certain foreign currencies; a seasonal rise in imports and other payments abroad may strengthen them.

Anticipation of future market trends may touch off speculative purchases or sales. Speculative purchases may become massive, if, for example, a foreign country is expected to raise the value of its currency. A recent case was the

German mark. Expectations that a country may devalue its currency in the near future may lead to a wave of speculative sales of the currency.

## THE FORWARD MARKET

Most major foreign currencies can be bought and sold for future as well as immediate (spot) delivery. Future transactions in foreign currencies are commonly referred to as forward exchange.

Forward-exchange markets are similar in important respects to futures markets for commodities. In forward purchases and sales, the date of delivery and price are agreed upon when the contract is made. For example, in foreign currencies for which there is an active forward market, purchases and sales for delivery in thirty days on up to six months are common. Longer terms of one year or more are sometimes negotiated, but dealers enter into such contracts only when they can hedge their position.

Option contracts which provide some leeway as to date of delivery and payment are frequently negotiated. A United States exporter, for example, may not be able to determine in advance the exact date his goods will be shipped and, therefore, when he will have his foreign draft for sale. Importers also are often unable to determine the day on which they will need to make payment abroad. Because of such uncertainties, foreign-exchange dealers enter into forward contracts giving the seller or buyer the option of offering or taking delivery on his future contract at any time within a 10-day period, such as the first 10 days of the month. Rates on option contracts are likely to be a shade above or below comparable futures maturing on a fixed date.

<sup>3</sup> Clay J. Anderson, "Balance of Payments," *Business Review*, Federal Reserve Bank of Philadelphia, June, 1970.

<sup>4</sup> The impact on our gold reserve is explained in the next article.

**Uses of Forward Market.** A forward-exchange market enables traders and others participating in international transactions to hedge against the risk of fluctuations in exchange rates. By means of forward sales or purchases, they can transfer all or most of the exchange-rate risk to someone else. To illustrate, let's assume an importer contracts to buy goods from an English exporter for 1,000 pounds sterling, which at a current rate of \$2.40 would yield \$2,400; if, however, the price of sterling has gone up by the time the goods arrive and payment is to be made, the cost will be more than the importer anticipated. He could protect himself against the exchange-rate risk when he contracts to buy the goods by purchasing 1,000 pounds sterling for delivery at the time he expects to make payment.

An exporter who has priced his goods in a foreign currency to yield a certain number of dollars may likewise find his dollar proceeds reduced because of a drop in the price of the foreign currency. He can protect himself by selling the foreign currency for future delivery or, in the terminology of the market, by selling forward exchange.

Commercial banks and other foreign-exchange dealers use the forward market to hedge their positions in foreign currencies. If a bank buys 100,000 pounds sterling in the spot market, it can cover its position by selling sterling forward. If the price of sterling rises, and spot and forward rates move together, the gain on holdings of 100,000 pounds sterling would offset the loss on the forward transaction. If, on the other hand, the price declines, the gain on the forward transaction would offset a loss on the sterling holdings acquired at a higher price. Dealers also use the spot market to hedge their positions in forward contracts.

United States purchasers of foreign securities may cover the exchange risk involved through

the forward market. If interest rates on short-term investments are higher abroad, there is an inducement to invest in short-term foreign assets to take advantage of the higher yield. A United States investor buying 90-day British Treasury bills would have to buy spot sterling to pay for them. At maturity 90 days hence, he would receive the face value of his bills in sterling. If in the meantime the price of sterling has declined, he would suffer a loss when converting his sterling into dollars. The investor could protect himself against loss by selling sterling for 90 days future delivery at the time he purchases British Treasury bills. If 90-day sterling is selling at a discount, the difference between the forward and spot rates represents the cost of "covering" his exchange risk.

**Role of Speculator.** A speculator is one who engages in foreign-exchange transactions hoping to profit from exchange-rate fluctuations. Traders, dealers, and other participants in the foreign-exchange market can hedge against the risk of rate fluctuation only because someone else—the speculator—is willing to take it.

Speculators can operate in the spot market. If a rise in the price of a foreign currency is anticipated in the near future, they could buy the currency and hold it for resale later; if, however, the price is expected to decline, they could sell the currency short—i.e., borrow the currency for delivery. To terminate the latter transaction, the short seller would have to go into the market later and buy the currency—hopefully at a lower price—to repay the amount borrowed. Buying and holding a currency to resell later or borrowing a currency to sell it short involves costs. In the former case, there is an interest cost or loss of interest that could otherwise be earned on the funds tied up in

foreign currency holdings; in the latter, there are costs involved in borrowing the currency for spot delivery.

Such costs can be avoided largely by operating in the forward market. Speculators who are bullish on a certain currency can buy it for future delivery and payment; bears can sell for future delivery and payment. Inasmuch as forward transactions are negotiated only with those considered creditworthy, margins are usually not required.

The line of demarcation between a speculator and one who enters the foreign-exchange market to settle a trade or financial transaction is not always clear-cut. Exporters and other prospective recipients of a foreign currency may not hedge by selling for future delivery if there is general expectation that the price of the currency will rise. They may wait until the foreign currency receipts arrive, hoping to sell at a higher price. Likewise, importers and others having to make future payments abroad may make a forward purchase if they expect the price of the foreign currency to rise or delay the purchase if the price of the currency is expected to fall.

It is sometimes alleged that informed speculation broadens a market and tends to cushion price or rate changes. Speculation in foreign exchange, however, has been disruptive and notably destabilizing at times. Expectation that a currency may be devalued or revalued upward may touch off a massive volume of speculative activity which puts strong downward or upward pressure on the exchange rate.

**Relation Between Spot and Forward Rates.** Spot and forward-exchange rates are closely linked. Expectations and interest-rate differentials are two of the more significant ties. Fluctuations in

spot rates are limited in accordance with agreements of member nations with the International Monetary Fund; however, such agreements do not cover forward rates.

Expectations about foreign-exchange rates influence both spot and forward rates. If, for example, sterling is expected to depreciate, prospective recipients would sell it forward; speculators also would sell it forward. Banks and other dealers, in buying these forward sales contracts, build up their forward positions in sterling. They may sell spot sterling to hedge their forward positions, thus putting downward pressure on the spot rate. Anticipations of a rising rate would tend to have the opposite effects.

Interest-rate differentials among international financial centers is another linkage between spot and forward rates. For instance, unless the spread between spot and forward rates for a foreign currency is such that the cost of covering the exchange risk is about equal to the difference in comparable interest rates in the United States and the foreign country, there is an inducement to shift funds to take advantage of the higher rates.

An outflow of funds to take advantage of a higher net return on British bills would tend to eliminate the profit opportunity. As already indicated, a United States purchaser of 90-day British bills would buy spot sterling to pay for them and sell 90-day forward sterling to cover his exchange risk. The resulting increased demand for spot delivery and increased supply of forward sterling would widen the spread between the two rates and increase the cost of hedging an investment in British Treasury bills. The outflow of short-term funds would tend to raise interest rates here and lower them in England. Thus, interest-arbitrage transactions tend to narrow the differential in interest rates

and widen the spread between spot and forward rates.

Interest-arbitrage transactions operate toward, but do not necessarily maintain, equality between interest-rate differentials and cost of covering exchange risk. Other factors influence the relationship between spot and forward rates. Some investors buy higher yielding foreign securities without covering the exchange risk. Speculators buy and sell foreign exchange, hoping to profit from rate fluctuations. Many investors in the United States, either because of legal restrictions or unfamiliarity with foreign-exchange practices, are unable or unwilling to engage in interest-arbitrage transactions. Hence, the volume of arbitrage transactions is often insufficient to maintain the spread between spot and forward rates at "interest-rate parity."

### EURO-DOLLAR MARKET

A large part of United States exports and a smaller but substantial part of imports are invoiced in and paid in dollars. Dollars are also widely used in payment of international transactions which do not involve United States participants. Many foreign-exchange transactions involving other currencies go through the dollar; that is, payment from Germany to France being effected by converting marks to dollars and dollars to francs. The dollar is extensively used as a "vehicle" currency, and transactions in dollars constitute the major segment of most foreign-exchange markets abroad.

Foreign-exchange operations of most foreign central banks and other official institutions to maintain the rate on their currency within agreed limits are executed in dollars. They pay out dollars for their own currency when the rate falls to the support level; they take in dollars for their own currency when the rate approaches the ceiling.

Because of the widespread use of the dollar as a means of international payment and as a vehicle currency, commercial banks, other foreign-exchange dealers, and central banks need dollar working balances in order to conduct their daily foreign-exchange operations. Foreign-owned demand and time deposits in United States commercial banks and liquid dollar assets, such as United States Treasury bills and commercial paper, total more than \$40 billion.<sup>5</sup> The bulk of these foreign-owned dollars and dollar assets is held by commercial banks and central banks abroad.

General acceptability and extensive use of the dollar in settling international transactions have induced foreign official institutions to hold a part of their international monetary reserves in dollars. One advantage of dollars over gold is that a portion of the dollar reserve can be held in the form of a highly liquid earning asset, such as a time deposit in a United States bank or Treasury bills. Foreign central bank and official institutions' holdings of dollar deposits and liquid dollar assets exceed \$12 billion. The United States dollar ranks next to gold as the second largest component of free world monetary reserves and constitutes over one-third of the total.

**Structure of the Euro-dollar Market.** Euro-dollars are deposits, denominated and payable in dollars, in a foreign bank. They are the deposit liability of a foreign bank, not the liability of a United States commercial bank to pay deposits held by foreigners. Perhaps the distinctive aspects of Euro-dollars will be clearer if one examines various ways in which they may originate.

Foreigners receiving payment in dollars—

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<sup>5</sup> This includes about \$12 billion of claims on U. S. banks held by their foreign branches.

checks, drafts, bills of exchange payable in dollars—may deposit the proceeds, denominated in dollars, in their bank instead of converting the dollars into their own currency. Foreigners with deposits in United States banks may transfer them to a foreign bank. Holders of foreign currencies may sell them for dollars and deposit the dollar proceeds in a foreign bank. Americans may transfer dollars to a foreign bank. These sources of dollar deposits in foreign banks may be thought of as primary deposits—holders of dollars deposit them in a foreign bank. New Euro-dollars may be created when foreign banks make dollar loans against their dollar deposits, as explained below.

The market in Euro-dollars, while not centralized, is an organized market. The term refers to a large number of banks, mostly in London and Western Europe, that accept demand and time deposits in dollars and extend credit to borrowers in dollars. Maturities of deposits other than demand range from overnight, seven and 30 days, up to one year. The average maturity, however, is probably less than three months. London is the center of the market, and banks in the United Kingdom hold about one-half the Euro-dollar total. Foreign branches of United States commercial banks are a dominant factor in the Euro-dollar market. Banks in Western Europe are other important holders of Euro-dollars. Total Euro-dollars outstanding at the end of 1969 was estimated at \$46 billion.<sup>6</sup>

The Euro-dollar market differs from a foreign-exchange market in which dollars are bought and sold for other currencies. It is really a bank credit market conducted in dollars by foreign banks. These banks accept deposits payable in dollars; loans to borrowers are made in dollars.

<sup>6</sup> Bank for International Settlements, Fortieth Annual Report, June 8, 1970.

To be in a position to pay depositors dollars on demand or at an agreed time, such banks typically hold a reserve of deposits in United States banks.<sup>7</sup> Just as in domestic banks, it is unlikely that all depositors will demand payment at once; hence dollar “reserves” in United States banks will be less than the total volume of Euro-dollar deposits. Again, as in the case of domestic banks, loans result in additional deposits, Euro-dollar deposits, being made available to borrowers. To the extent experience reveals that reserves held against deposits can be less than 100 per cent, Euro-dollar banks (as a group) in making loans may enlarge the total volume of Euro-dollar deposits. The proportion of reserves held, and maximum multiple expansion of credit and deposits depend on leakages as Euro-dollars flow from one bank to another. Euro-dollars are not commonly used as a means of payment in domestic transactions. For this and other reasons, leakage here is likely to be much greater than for commercial banks in the United States.

**Recent Development and Growth.** The Russians initiated in the 1950’s what was perhaps the forerunner of the present Euro-dollar market. They wanted to keep dollar balances, but preferred to hold them where they could not be impounded by the United States Government. Consequently, dollar deposits were maintained in some West European banks.

Two developments established the conditions essential for development of a sizable Euro-dollar market. Growing use of the dollar in international transactions and as a vehicle currency created a broad demand for United States dollars. Restoration of currency convertibility

<sup>7</sup> An individual bank might consider Euro-dollar deposits in another bank as reserve; however, ultimate ability of the banks as a group to pay dollars derives from deposits held in United States banks.

and relaxation or removal of exchange restrictions made possible the free flow of funds necessary in conducting a market.

The Euro-dollar market has grown substantially in the past decade, especially in the latter part of the 1960's. Several factors contributed to its growth.

United States Government regulations stimulated the flow of dollars into the Euro-dollar market. Payment of interest on demand deposits in U.S. commercial banks is prohibited, and there are ceilings on rates that can be paid on various classes of time deposits. Euro-dollar deposits often earn more than comparable deposits in United States banks. There was also a shortage of attractive money-market instruments in West European countries suitable for investment. Relatively high interest rates and convenient maturities attracted dollars from a variety of sources. Recurrent uncertainty about the future value of currencies, such as sterling and the French franc, induced conversion of foreign currencies into Euro-dollars. Finally, growth itself made the market better-known and more attractive as an outlet for short-term funds.

Rising demand was an essential condition for growth. An expanding volume of international trade and financial transactions enlarged the need for short-term financing in a currency generally acceptable in international transactions. The Euro-dollar market often served as a supplement to domestic sources of credit.

Recent developments have expanded both supply of, and demand for Euro-dollars. Rates on Euro-dollar deposits have generally been higher than rates on alternative short-term investments. More stringent controls on United States direct investments abroad induced a substantial rise in bond flotations in foreign

markets by United States corporations. The proceeds often were placed temporarily in Euro-dollars. Apparently, substantial amounts of foreign funds were diverted from purchases of United States securities, especially in 1969, to the Euro-dollar market.

Temporary forces also have augmented demand for Euro-dollars. Our voluntary credit restraint program diverted some credit demand from United States banks to the Euro-dollar market, particularly to branches of United States banks. Both foreign and United States commercial banks at times turn to the Euro-dollar market to adjust liquidity and reserve positions, and for supplementary funds to meet customer credit demands. Demand of large United States commercial banks soared in the latter part of 1968 and in 1969. Pressure on reserves, losses of negotiable CD's, and exceptionally strong credit demand induced these banks to borrow heavily in the Euro-dollar market.

The Euro-dollar market has become a widely used international short-term money market. The market performs internationally the basic functions that a domestic money market performs within a country—it provides a mechanism for shifting funds from banks, corporations, and others with temporary surpluses to those with temporary shortages.

**Euro-Bonds.** Euro-bonds refer to issues denominated in a single currency and sold simultaneously in several countries by a multi-national underwriting syndicate. Most issues are denominated in United States dollars (interest and principal payable in dollars), the most widely accepted currency internationally; however, occasionally an issue is denominated in sterling, German marks, or another major currency.

Euro-bonds emerged in 1963, largely as a re-

sult of restrictions imposed on foreign borrowing in the United States. Initially, use was limited to a few European public and private institutions that formerly had borrowed in the New York market. However, use of Euro-bonds has grown rapidly in the past few years. More borrowers in more countries have turned to the market, and funds are mobilized from an ever-widening area.

Euro-bonds have the advantages of avoiding restrictions imposed in many countries on foreign borrowing in a local currency, and of giving borrowers access to a much larger pool of funds. European countries now serve as a channel for funds drawn from most parts of the free world. Intensified restrictions on foreign direct investments of United States corporations in 1968 provided a further stimulus. United States corporations turned to Euro-bonds and recently have become the dominant borrowers in that market. A substantial part of the proceeds of such issues was placed temporarily in Euro-dollars.

Exceptionally high rates on Euro-dollars have recently diverted funds from Euro-bonds. In addition, several European countries have imposed restrictions on domestic bank participation in Euro-bond issues in order to limit the resulting outflow of capital.

### **IMPLICATIONS FOR POLICY**

Foreign-exchange rates, if established solely by market forces, might fluctuate widely at times. Speculation, in particular, could be a serious destabilizing force. Volatile exchange rates create uncertainty and tend to inhibit international transactions. Stable exchange rates is one of the key provisions of the International Monetary Fund. But the policy question of fixed versus flexible exchange rates has many ramifications.

They are explored in the next article in this series which deals with the international monetary system.

The Euro-dollar market has two principal policy implications: its effect on our balance of payments and its significance for monetary policy.

The United States balance of payments for 1968 affords a good illustration of how the Euro-dollar market may affect a surplus or deficit. The reduction in liabilities to foreign official institutions reflected indirectly a substantial flow of funds to the Euro-dollar market. High Euro-dollar rates attracted foreign funds, resulting in conversion of foreign currencies into dollars. Also, the high rates probably induced some private holders to put their dollars in the Euro-dollar market instead of turning them in to the central bank. Large borrowing of Euro-dollars by United States commercial banks was a contributing factor; the tendency was to push up Euro-dollar rates, thereby making conversion of foreign currencies into dollars more profitable.

Conversion of foreign currencies into dollars put downward pressure on such currencies in foreign-exchange markets. As exchange rates approached the floor, central banks sold dollars for their own currencies. High rates, by discouraging private holders from turning in dollars to the central bank, also tended to reduce United States liabilities to foreign official institutions. The net effect was to increase our balance-of-payments surplus on the official settlements basis.

Withdrawal of funds from the Euro-dollar market would tend to have the opposite effect. Conversion of dollars into foreign currencies in sufficient volume would lift exchange rates on these currencies toward the ceiling. Support operations by foreign central banks would in-

volve converting their own currencies into dollars. Private holders might turn more of their dollars in to the central bank. The additional dollars acquired would increase United States liabilities to foreign official institutions, thereby tending to reduce an official settlements surplus or enlarge a deficit.

The impact on the liquidity basis surplus or deficit is not so clear-cut. Placing foreign-owned dollar deposits in United States banks into the Euro-dollar market transfers ownership from one foreign holder to another; total liquid liabilities to foreigners do not change. Borrowing by United States commercial banks from their branches abroad is likely to result in only a shift in the form of the liability. A transfer of domestically owned deposits to the Euro-dollar market, however, would increase short-term liabilities to foreigners, thereby tending to reduce a surplus or enlarge a deficit on the liquidity basis. Inasmuch as private liabilities to foreigners are omitted, such transactions would have no effect on the official settlements surplus or deficit.

Euro-dollar transactions could affect the liquidity basis surplus or deficit by altering the maturity composition of our liabilities to foreigners. For example, if foreign-owned long-term United States securities were sold and the proceeds placed in the Euro-dollar market, short-term liabilities would be increased. This rise in short-term liabilities to foreigners would tend to decrease the surplus (increase the deficit) on a liquidity basis.

Recently, the Euro-dollar market has stirred considerable controversy over possible effects on monetary policy. Intensified pressure on reserve positions sent commercial banks scrambling for new sources of funds. More attractive market rates resulted in a marked decline in negoti-

able CD's. Large banks, especially those with branches abroad, turned to the Euro-dollar market for additional funds. In analyzing the implications for monetary policy, two types of effects should be distinguished.

Of greatest significance is the impact on total reserves and the capability of the Federal Reserve to affect total bank credit and the money supply. The direct effect of Euro-dollar operations on total reserves available to United States commercial banks appears to be minor. Recalling the various ways that Euro-dollar deposits may come into existence, we find none alters the total volume of our bank reserves. Placing dollars in the Euro-dollar market, whether from foreign dollar receipts or conversion of foreign currencies into dollars, results in a transfer of ownership with no change in total deposits and total reserves of United States commercial banks. Funds shifted by United States residents from domestic to Euro-dollar banks increase foreign-owned deposits but have no effect on total United States commercial bank deposits and reserves.

One type of transaction, however, may alter total required reserves. Borrowing of United States banks from their branches abroad shifts the form of liability from a deposit. Reserves are required against deposits, and, until recently, the effect was to reduce required reserves of the borrowing banks. The Board of Governors recently imposed a reserve requirement against bank borrowings from foreign branches and banks in excess of the amount outstanding in a certain base period. This new reserve requirement reduces the impact of borrowing from foreign branches on the volume of required reserves.

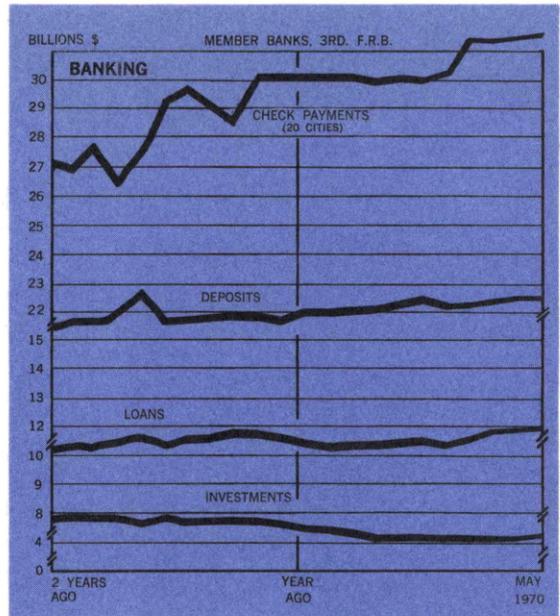
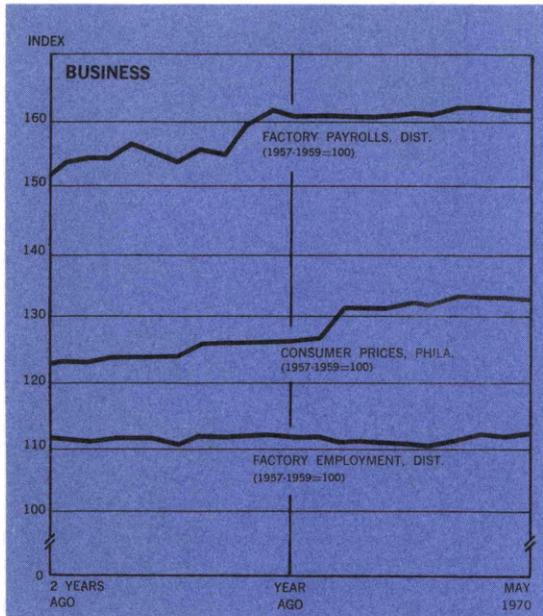
Even though Euro-dollar operations have little effect on the total reserve position of

United States banks, what about the impact on individual banks? Do Euro-dollars enable a few large banks with foreign branches to escape restraint imposed by a tight-money policy? At present, Euro-dollars are a practical source of funds for only a relatively small number of United States banks. Borrowing from foreign branches does augment somewhat funds available for loans; however, these funds are likely to be more expensive than domestic sources, and the newly imposed reserve requirement further reduces the advantage of such borrowing. Secondary effects may reduce still further the net advantages of borrowing Euro-dollars. As already noted, strong demand from United States banks was a significant factor in lifting Euro-dollar rates to unusually high levels. These high rates attracted funds from a variety of sources, including residents of the United States. Inasmuch as these Americans would likely be customers of the larger banks, borrowing Euro-dollars may to some extent only recapture at a high cost deposits siphoned away by unusually

attractive Euro-dollar rates.

The impact of the Euro-dollar market on United States commercial banks, as a system and individually, has numerous ramifications. Nevertheless, analysis indicates two general conclusions are valid. One, the effect on total available reserves, if any, is very small—far too small to impair Federal Reserve capability to alter total reserves and thereby monetary aggregates linked to the reserve base. At the maximum, Euro-dollar operations might complicate calculating day-to-day estimates of reserve positions, thereby making it slightly more difficult to use open market operations to achieve very short-term objectives. The second conclusion is that access to the Euro-dollar market apparently does not seriously distort distribution of the effects of monetary restraint among banks. The few large banks with foreign branches do have direct access to this source of funds, but the net benefit derived may easily be exaggerated. The advantages appear to be no greater than their size affords in tapping domestic sources of funds.

# FOR THE RECORD...



SUMMARY	Third Federal Reserve District			United States		
	Per cent change			Per cent change		
	May 1970 from		5 mos. 1970 from	May 1970 from		5 mos. 1970 from
	mo. ago	year ago	year ago	mo. ago	year ago	year ago
<b>MANUFACTURING</b>						
Production	.....	.....	.....	- 1	- 3	- 1
Electric power consumed	- 1	+ 1	+ 3	.....	.....	.....
Man-hours, total*	- 1	- 4	- 2	.....	.....	.....
Employment, total	- 1	- 2	- 1	.....	.....	.....
Wage income*	- 1	+ 1	+ 3	.....	.....	.....
CONSTRUCTION**	-60	- 9	+54	-20	-23	+ 3
COAL PRODUCTION	+ 9	- 1	- 3	+ 6	+ 5	+ 4
<b>BANKING</b>						
(All member banks)						
Deposits	0	- 2	- 3	0	0	- 1
Loans	+ 1	+ 6	+ 6	0	+ 5	+ 7
Investments	+ 2	- 6	- 9	0	- 1	- 6
U.S. Govt. securities	+ 3	- 9	-14	0	- 5	-12
Other	+ 2	- 3	- 5	0	+ 2	- 1
Check payments***	+ 6†	+17†	+14†	- 1	+10	+11
<b>PRICES</b>						
Wholesale	.....	.....	.....	0	+ 4	+ 4
Consumer	+ 1‡	+ 7‡	+ 7‡	0	+ 6	+ 6

LOCAL CHANGES	Manufacturing				Banking			
	Employment		Payrolls		Check Payments**		Total Deposits***	
	Per cent change May 1970 from		Per cent change May 1970 from		Per cent change May 1970 from		Per cent change May 1970 from	
	mo. ago	year ago						
Standard Metropolitan Statistical Areas*								
Wilmington ..	0	0	- 2	- 1	- 2	+15	- 6	- 4
Atlantic City ..	.....	.....	.....	.....	- 4	+12	+ 2	+10
Trenton .....	0	- 4	- 2	+ 1	+36	- 1	+12	+22
Altoona .....	- 2	+ 4	- 1	+ 4	+ 7	+15	+ 1	+ 6
Harrisburg ...	- 1	- 3	0	+ 3	+ 3	+19	+ 1	+43
Johnstown ...	- 1	0	- 2	- 1	+ 8	+ 6	+ 2	+ 7
Lancaster .....	0	0	- 1	+ 6	+ 3	+16	+ 1	- 4
Lehigh Valley.	0	+ 1	0	+ 6	+ 8	+ 5	+ 1	- 7
Philadelphia ..	- 1	- 4	- 1	- 3	+ 6	+20	- 1	- 2
Reading .....	- 1	- 2	- 4	+ 1	+ 4	+11	+ 1	+ 5
Scranton .....	- 1	- 3	0	+ 1	+ 9	+13	+ 2	+ 7
Wilkes-Barre ..	- 1	- 3	- 2	0	+ 2	+11	+ 1	-25
York .....	- 1	+ 1	+ 2	+ 3	0	+19	+ 1	- 7

\*Production workers only  
 \*\*Value of contracts  
 \*\*\*Adjusted for seasonal variation

†15 SMSA's  
 ‡Philadelphia

\*Not restricted to corporate limits of cities but covers areas of one or more counties.  
 \*\*All commercial banks. Adjusted for seasonal variation.  
 \*\*\*Member banks only. Last Wednesday of the month.