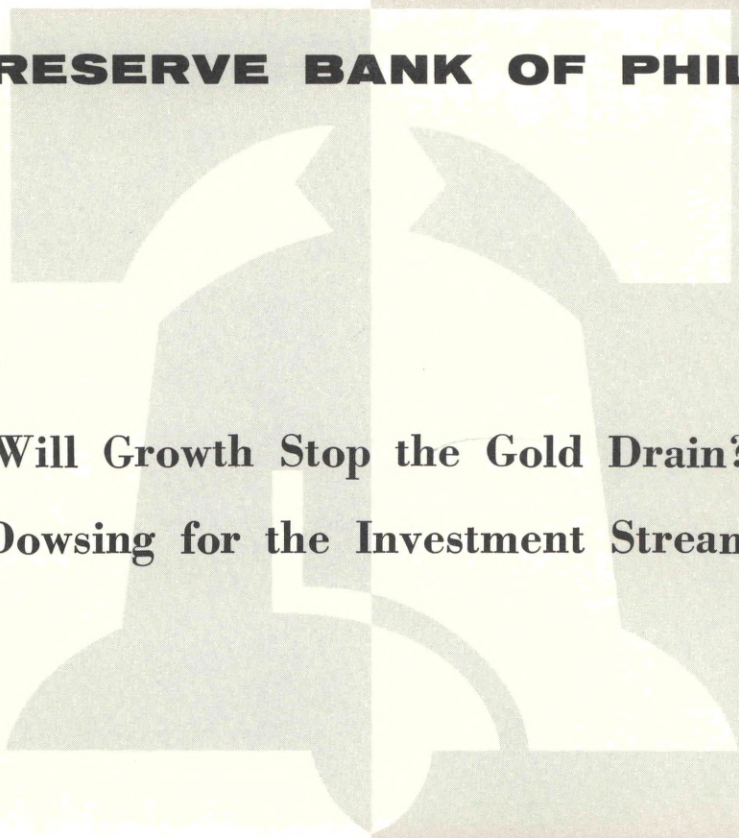


# BUSINESS REVIEW

FEDERAL RESERVE BANK OF PHILADELPHIA



**Will Growth Stop the Gold Drain?  
Dowsing for the Investment Stream**

**NOVEMBER 1963**

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Federal Reserve Bank of St. Louis

*Some say an increase in the rate of economic growth in this country will help solve our balance-of-payments problem and stem the outflow of gold to foreign lands. In this article we examine the reasoning behind this argument and take a look at some evidence which may help answer the question . . .*



## **WILL GROWTH STOP THE GOLD DRAIN?**

Eighty-five feet below the busy streets of Manhattan lies a treasure in gold—over \$13 billion cast in bricks, truncated pyramids, and thin sash-weight bars. Each bar bears the seal of its caster, some exotic Oriental gold merchant, or perhaps the mighty House of Rothschild. And each bar is carefully stacked in one of 118 steel wire cages, many of which evidence the preserve of a particular foreign government or central bank.

In recent years, long hours have been spent transferring gold bars in and out of these cages. The men putting in these hours are the physical manifestation of a problem which has plagued this nation for over six years. They are employees of the Federal Reserve Bank of New York and much of the metal they put into the cages marks the physical shift of gold from United States ownership to that of foreign nations. It is partial settlement of our “balance-of-payments deficit.”

The payments deficit stems from the fact that

we have been paying more out to foreign nations for imports, investments, military aid, and the like than we have received from them for our exports of goods and services and from other international transactions. To make up the difference, we have paid out gold and dollars, and foreigners have accumulated our short-term I.O.U.’s in such forms as Treasury bills and commercial bank time deposits.

Of course, a nation, much like an individual, can’t go on forever spending more than it receives. So we have been doing many things to try and decrease our deficit. These things range all the way from Government-sponsored programs to expand exports to a decrease in the dollar value of duty-free goods that American tourists may bring in from abroad. Yet the deficit has continued.

In recent months a relatively new balance-of-payments thesis has gained widespread acceptance: that the deficit can be relieved through an acceleration in the rate of economic growth

in this nation. In this article we examine the degree of confidence which might be accorded this thesis on the basis of experience with growth and the balance of payments.

But first, just what is the reasoning behind the growth thesis?

### **REASONING**

The rationale behind the growth proposition concerns both the international capital and trade transactions between this country and foreign nations. It is reasoned, first of all, that more rapid economic growth in the United States will make this nation more attractive to foreign and domestic investors—more attractive because accelerating growth will create a greater demand for capital and a rise in profits and interest rates. Greater demand for capital and higher profits and interest rates will cause both domestic and foreign investors to channel more of their funds into United States investments—into new plant and equipment, purchases of stocks and bonds, and into short-term investments, such as Treasury bills. The increased investment at home, it is reasoned, will mean a reduction of investment funds flowing abroad—funds that reached a \$3.3 billion total last year.

It is also reasoned that accelerating economic growth would have favorable effects on our trade position. A higher growth rate, the argument goes, would increase income and demand for goods. Greater demands for goods during a period of less than full employment would increase production from present levels, thereby doing two things: (a) cutting unit costs of production and (b) providing more profits so business could modernize plant and equipment, thus further cutting costs. This double-edged decrease in costs would help both our export industries

and our import-threatened industries to compete with foreign goods.

It is recognized that the rise in incomes created by a hike in the growth rate might mean an increase in imports and thus an increased outflow of dollars for imported goods. But the growth proposition concludes that the combination of (a) the decrease in capital flowing abroad and (b) the better competitive position of our export and import industries will provide more than enough counterforce to make up the increased imports and still contribute to a reduction in our deficit.

This is the argument. Let us examine it in the light of experience.

### **TECHNIQUE OF ANALYSIS**

Since the theory hinges on growth, one might go back in history, look at periods characterized by substantially differing rates of economic growth, and see how our balance of payments actually behaved. During periods of fastest growth, for example, did the rate of capital outflow really decline in response to greater demands for capital and higher profits and interest rates? And what actually happened to the trade balance?

To answer these questions, balance-of-payments flows first were examined during different phases of the business cycle. Every cycle since 1920 was analyzed to see if discernible patterns of behavior could be established for balance-of-payments items as the cycle phase shifted from fast growth to slow growth to recession. Then longer time spans were examined to see if the expected growth patterns emerged. First, then, how did the balance of payments behave over the differing growth phases of the business cycle? The answer to this question is provided in the tables which follow. But before we ex-

amine the findings, let us take a look at the structure of the tables.

### THE TABLES

Column 1 of the first three tables contains several balance-of-payments items, both individual entries and selected groupings. First, we have the total of net private capital flows abroad and then the sub-items which compose these capital flows.

Next we have private capital outflows and foreign capital flowing in, and the difference between the two, both including and excluding a portion of errors and omissions. (Errors and omissions is a catch-all category which includes flows of funds which have gone undetected in the process of gathering together the balance-of-payments statistics. The category is thought to be composed of a sizable portion of undetected capital flows.)

Next comes our imports and exports, our net export balance, and finally we have combined net capital flows, trade balance, and errors and omissions.

The remaining columns contain a series of ratios for each balance-of-payments item and group. The ratios tell us the percentage of business cycles in which an improvement occurred as we changed from a slower to a faster rate of growth. For example, if in eight of the ten cycles occurring since 1920 the capital outflow slowed down as we moved from recession to expansion, then we would put 80 per cent in the expansion column and 20 per cent in the recession column, indicating that capital flows contributed to an improvement in our balance of payments 80 per cent of the time as we changed from recession to the faster growth phase.

The cycles in the first two tables are broken

into two time periods: the period 1920–1962 and the sub-period 1945–1962. Of course, our balance-of-payments data were not so good during the earlier years, but the similarity of behavior during the two periods is an indication that the data may be adequate for the type of analysis employed.

Now to the findings of the analysis. What actually happened to our balance-of-payments items as we moved from slower to faster rates of growth?

### RESULTS

Looking first at the net private capital flow abroad in Table I, we see a different sort of picture than we might have anticipated, given the growth thesis. In only two out of the ten cycles composing the 1920–1962 period (and also in only 20 per cent of the postwar cycles) was our balance of payments better off in the fast growth or expansion phase than it was in the recession phase.

Looking next at the items composing our net private capital flow abroad, we see that all contributed to an improvement more often in recessions than in the accompanying expansion phase. The pattern is even more pronounced in the postwar cycles than in the period as a whole.

When we add one-half of errors and omissions to the net private capital flow abroad,<sup>1</sup> we see a fifty-fifty pattern during the entire period 1920–1962, indicating no preponderance of improvement in expansions or recessions. In the postwar period, however, there is still a slight edge in favor of improvements during recessions.

After calculating the difference between U. S. capital outflows and foreign capital inflows, we once more see a fifty-fifty pattern during the 1920–1962 period and a slight edge in favor of

<sup>1</sup> No one really knows the amount of undetected capital flows counted as errors and omissions. The 50 per cent figure might be considered a rule of thumb.

TABLE I

Balance-of-Payments Item	Per Cent of Total Business Cycles During Which Item Contributed to an Improvement in the Balance of Payments*			
	1920-1962 (10 Expansions, 10 Recessions)		1945-1962 (5 Expansions, 5 Recessions)	
	Expansions	Recessions	Expansions	Recessions
1. Net private capital flows abroad	20††	80††	20†	80†
(a) Direct investments	33**	67**	20†	80†
(b) Long-term portfolio investments	37**	63**	40	60
(c) Short-term investments	44**	56**	20†	80†
Net private capital flows abroad plus one-half errors and omissions	50	50	40	60
2. Foreign direct and long-term portfolio investment in the U. S.	70	30	80	20†
3. U.S. private capital flows less foreign direct and long-term investment	50	50	40	60
Above plus one-half errors and omissions	40	60	40	60
4. Exports of goods and services (excluding military transactions)	60	40	60	40
5. Imports of goods and services	30	70	20†	80†
6. Net export balance	50	50	60	40
7. Net export balance less difference in U.S. capital outflows and foreign capital inflows	50	50	60	40
Above including total of errors and omissions	60	40	60	40

\* In this and following tables balance-of-payments items from which the ratios are derived are expressed in average monthly flows of funds. An improvement during the boom phase (say in capital account) would occur if the rate of outflow of funds decreased relative to that in the preceding recession period or if an outflow of funds in the recession were replaced by an inflow. N.B.E.R. reference dates were used to determine cycle periods and quarterly balance-of-payments data (yearly data in the earlier period) were interpolated to arrive at the average monthly flows of funds for each cycle.

\*\* Odd number because availability of data permits comparison of fewer cycles, 9 for direct investment and short-term capital, 8 for long-term portfolio investment.

†† Statistically significant at 90% level of confidence.

† Statistically significant at 80% level of confidence.

improvement during recessions for the postwar period.

Adding one-half of errors and omissions to the U. S. capital flow changes the pattern only slightly. In both periods we are better off six out of ten recessions and four out of ten booms.

Looking next at the trade picture, our net export balance shows a fifty-fifty pattern during the entire period indicating no preponderance of improvements in expansions or recessions. In the postwar period, a slight edge appears during the expansion phase.

The last entry in Table I combines our capital flows, net export balance, and errors and omissions. As can be seen, this most comprehensive measure of our balance-of-payments performance gives a slight edge to improvements during the expansion phase. This is true both for the 1920-1962 period and the 1945-1962 period.

Yet the margin is small. During six out of

ten cycles, this combination of items shows improvement as we move from slow to fast growth; during four out of ten cycles, it shows deterioration. Indeed, the test for statistical significance (the daggers on the table show which items may be considered statistically significant) tells us that we can have virtually no confidence that the 60-40 pattern did not evolve simply due to chance.<sup>2</sup>

In summary, then, private U. S. capital tends most often to cause deterioration rather than improvement as we move from recession to expansion. But after adding in errors and omissions and foreign capital inflows, the total capital account shows little preponderance for

<sup>2</sup> The chi-square test was used to determine statistical significance. The hypothesis formulated was that the items contributed predominantly to neither improvement nor deterioration in our balance of payments during either phase of the cycle. A rejection of this hypothesis on the basis of the test indicated that an item did indeed contribute predominantly to improvement or deterioration. The percentage indicates the degree of confidence (i.e., 80 per cent, 90 per cent) with which the hypothesis was rejected. This confidence did not prove extremely high even for the items where the hypothesis was rejected.

TABLE II

Balance-of-Payments Item	Per Cent of Total Business Cycles During Which Item Contributed to an Improvement in the Balance of Payments (Six Months Lag in Balance-of-Payments Items)			
	1920-1962 (10 Expansions, 10 Recessions)		1945-1962 (5 Expansions, 5 Recessions)	
	Expansions	Recessions	Expansions	Recessions
1. Net private capital flows abroad	30	70	20†	80†
(a) Direct investments	30	70	20†	80†
(b) Long-term portfolio investments	50*	50	40	60
(c) Short-term investments	56*	44	60	40
Net private capital flows abroad plus one-half errors and omissions	50	50	40	60
2. Foreign direct and long-term portfolio investment in the U. S.	60	40	60	40
3. U.S. private capital flows less foreign direct and long-term investment	60	40	60	40
Above plus one-half errors and omissions	50	50	60	40
4. Exports of goods and services (excluding military transactions)	80††	20††	100†	0†
5. Imports of goods and services	10††	90††	0	100
6. Net export balance	40	60	40	60†
7. Net export balance less difference in U.S. capital outflows and foreign capital inflows	60	40	60	40
Above including total of errors and omissions	50	50	40	60

\* Odd number because availability of data permits comparison of fewer cycles, 8 for long-term portfolio investment and 9 for short-term investment.

†† Statistically significant at 90% level of confidence.

† Statistically significant at 80% level of confidence.

improvement during either the expansion or recession phase. Similarly, out net export balance shows no marked tendency toward improvement in either expansions or recessions. The same thing is true when we group capital, the net export balance, and errors and omissions. One would thus be hard pressed to make a case for the growth thesis on the basis of Table I.

But let us go a step further. It is quite possible that the balance of payments responds to an increase in the rate of growth only after a time lag. One might reason, for example, that (a) it takes time for increased growth to be reflected in rising profits and interest rates, (b) it takes time for investors to become aware of the increased growth, higher interest rates, and profits in this country and (c) time is required for the physical arrangements necessary to direct a larger volume of investment into the domestic economy.

Table II shows the recession-expansion comparison adjusted to include a six-month lag in

the payments items. Yet despite the lag adjustment, the main groups of items show a striking similarity to those in Table I.

The total U. S. private capital outflow tends to cause deterioration in the balance of payments as we move from recession to expansion but, after correcting for errors and omissions and also when coupled with foreign capital inflows, the combined capital account once more shows little preponderance for improvement during either the expansion or recession phase.<sup>3</sup>

Similarly, the net export balance exhibits no very significant preponderance of improvements in either phase. The same pattern holds true when we group together the combined capital, the net export balance, and errors and omissions. Thus, on the basis of Table II, one would also be hard pressed to make a case for the growth hypothesis.

Yet it is still possible that a *very* fast rate of

<sup>3</sup> It should be noted, however, that short-term capital flows now show a predominance of improvements as the cycle moves from recession to expansion (the postwar period).

TABLE III

Balance-of-Payments Item	Per Cent of Total Business Cycles During Which Item Contributed to an Improvement in the Balance of Payments	
	1945-1962 (5 Recessions, 5 Expansions)	
	Fast-Growth Phase	Stability
1. Net private capital flows abroad	80†	20†
(a) Direct investments	60	40
(b) Long-term portfolio investments	80†	20†
(c) Short-term investments	60	40
Net private capital flows abroad plus one-half errors and omissions	60	40
2. Foreign direct and long-term portfolio investment in the U. S.	40	60
3. U.S. private capital flows less foreign direct and long-term investment	80†	20†
Above plus one-half errors and omissions	60	40
4. Exports of goods and services (excluding military transactions)	0†	100†
5. Imports of goods and services	100†	0†
6. Net export balance	0†	100†
7. Net export balance less difference in U.S. capital outflows and foreign capital inflows	40	60
Above including total of errors and omissions	20†	80†

† Statistically significant at the 80% level of confidence.

cyclical growth might result in a balance-of-payments pattern more in keeping with the growth hypothesis. To test this possibility, a comparison was made of the behavior of the post-World War II balance-of-payments items *within* the expansion phase: as the cycle moved from the trough into the very fast upward phase and then leveled off into the phase of relative stability or "bumping along the top" as it is sometimes called. What, then, happened as the cycle moved from fast growth to stability? In fact, an interesting change occurred.

As shown in Table III, we have a concentration of improvements in capital flows during the fast-growth phase. Both (a) U. S. private net capital and (b) the combined U. S. outflow and foreign inflow accounts show improvement in 80 per cent of the cycles during the fast-growth phase. When we include errors and

omissions, however, both accounts drop down to a statistically insignificant level: growth-phase improvements during only 60 per cent of the cycles.

The net export balance in every cycle shows deterioration in the fast-growth phase and improvement in the stability phase.

Finally, when we combine capital, the export balance, and errors and omissions, we have improvement during the fast-growth phase during only one out of five cycles. The predominance of capital account improvements during the upswing erodes under the pressure of the export balance and errors and omissions.

Thus, even though the growth hypothesis looks a little better on capital account in the fast-growth/stability comparison, by no means are we able to establish the proposition.

But so much for the cycle. Let us now look



TABLE IV

Balance-of-Payments Items	Average Annual Per Cent Change in Selected Balance-of-Payments Flows Over Periods Associated With Differential Rates of Economic Growth* (minus signs indicate a deterioration in the balance of payments)			
	1921-29	1930-39	1948-56	1959-62
1. Net private capital flows abroad	- 8.6	+11.8	- 24.7	- 6.1
(a) Direct investments	N.A.	+11.6	- 12.6	- 1.0
(b) Long-term portfolio investments	N.A.	- 6.0	- 59.7	- 8.3
(c) Short-term investments	N.A.	- 4.4	-137.2	- 14.6
Net private capital plus one-half errors and omissions	-11.5	+14.1	- 86.3	- 4.3
2. U.S. private capital outflows plus one-half errors and omissions less foreign direct and long-term portfolio capital inflows	- 4.0	+ 7.4	- 53.5	- 15.1
3. Net export balance	- 2.4	+ 5.8	- 6.6	+ 54.4
4. Net export balance less combined U.S. and foreign capital flows	- 5.4	+ 7.8	- 9.6	+130.9
5. Above including 100% of errors and omissions	- 9.2	+ 7.1	- 9.4	+ 70.2

\* Per cent change over the period is calculated from an average for the first two years of the period to an average of the last two. Simple annual rates of growth as measured by the Industrial Production Index are as follows: 1921-29, 11.6%; 1930-39, 2.3%; 1948-56, 6.0%; 1959-62, 4.0%.

at the balance-of-payments items over longer time periods.

### GROWTH AND THE BALANCE OF PAYMENTS OVER LONGER PERIODS OF TIME

Table IV shows average annual percentage changes in selected balance-of-payments items during two fast-growth periods, 1921-1929 and 1948-1956 and two relatively slow-growth periods, 1930-1939 and 1959-1962. Of course, the depression period is associated with rather extraordinary events affecting the world economy, but since the years for which we have balance-of-payments data are limited, the period is included with the obvious qualification that the period may not be representative.

In general, Table IV suggests that fast-growth periods are associated with deterioration in the balance of payments (increases in outflows of funds or decreases in inflows) and slow-growth periods with improvement. The table should not be taken, however, as evidence that the reverse of the growth hypothesis is true. The observations are too few, data in the earlier period are not without question—to mention just two reservations. Rather one might say that the table

does not inspire confidence in the validity of the growth thesis.

As for the individual items in Table IV, percentage increases in private capital flowing abroad are greater during the fast-growth periods (though this tendency is less evident when U. S. capital outflows are coupled with foreign capital inflows). The net export balance deteriorates during the fast-growth periods and improves during the slow-growth years, as does the grouping of capital, net export balance, and errors and omissions.

### CONCLUSIONS

One might be tempted to draw the conclusion from this analysis that there is a slight edge in favor of the proposition that a faster rate of growth tends to promote a worsening in the balance of payments; that imports tend to grow faster than exports during the fast-growth periods, and that businessmen tend to invest more at home—but also more abroad during expansions (e.g., “Profits look good so let’s expand in Cincinnati, and while we’re at it we might reconsider the subsidiary in Milan”—or—“Things look good the world over so let’s

stretch out for an extra 1 per cent on a Canadian issue”).

Yet such a conclusion is probably unwarranted. After all (and as previously mentioned) the balance-of-payments observations are relatively few; the results of all comparisons were not uniform in outcome; the data may be questioned; there is some trend in the cyclical comparisons (though from an examination of the data, this problem is considered to be minimal).

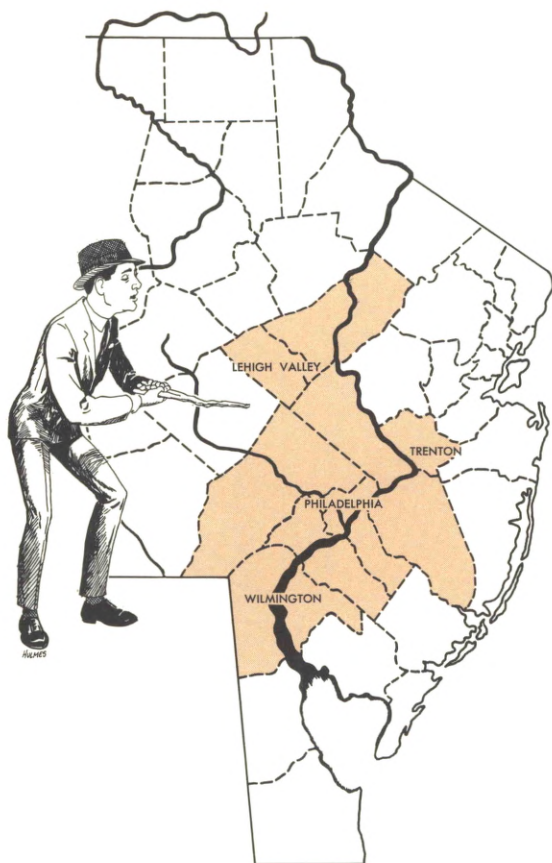
To be on firmer ground one might conclude instead that the evidence presented suggests that the growth thesis may be a case of oversimplification, that the behavior of our balance of payments is extremely complex and defies simple explanation, that there is simply no clear-cut and statistically discernible tend-

ency for an acceleration in the rate of growth to bring about an improvement in our balance of payments.

Given this conclusion, then, what guidance might this study offer the policymaker? Perhaps the following.

An increase in the rate of economic growth may help relieve our balance-of-payments deficit. Then again, it may not. Hence the wisdom which may be gained from this study is perhaps this: we should not count too heavily on growth as an equilibrating force; we should not put all our eggs in this basket; we should not even commit half our eggs. Instead, we should continue to strive for balance-of-payments equilibrium across the entire broad spectrum of public and private policy. And perhaps we should intensify our efforts.

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## DOWSING FOR THE INVESTMENT STREAM

*. . . This Bank's survey indicates manufacturing firms anticipate reduced capital expenditures during 1964. Why?*

Autumn is a time of falling leaves, air scented by pungent smoke, and hobgoblins. For some, fall means football games and weenie roasts. If you happen to be a borough or town official somewhere in the Third District of the Federal Reserve System, this is the time of year when the long, hot summer is over. The extended dry season has all the proportions of a drought, so you compute water reserves and seek new sources to rebuild depleted water supplies.

Using the modern scientific approach, you find

new streams and reservoirs by hiring a hydrologist. His electronic devices can locate hidden underground springs and wells—your problem is solved. Should he fail, you can always “dowse.”

### **Enter the “dowser”**

Somewhat less scientific, but reputedly more effective than all the “new-fangled contraptions” for locating a stream is that practitioner of the ancient and venerable art of dowsing, the “dowser.” In caricatures, he is depicted as a

hoary gentleman possessing some sort of mystical relationship with the elements who can find water where it "ain't." The equipment he uses is a divining rod—a forked stick, preferably from the witch hazel shrub. To dowse, one grasps the divining rod firmly by the forks, holds the rod out in front, closes his eyes and walks. When the dowser is over water, the divining rod tilts downward indicating where to dig. Depending on the size of the underground stream, the rod will react anyway from twitchings to violent jerks.

### Whittling the hazel stick

Twice a year, in the fall and spring, we at the Philadelphia Bank look for streams. Attempts are made to locate and measure that highly important stream in economic activity—the investment stream. In the fall, we ask manufacturers in the Delaware and Lehigh Valleys to estimate their capital expenditures on plant and equipment for the coming year.<sup>1</sup> The following spring a check-up survey is made. In the spectrum of methodology, the survey ranks well above crystal-ball gazing and reading tea leaves, but somewhat less than the most sophisticated techniques currently fashionable in economic research and survey work.

### For 1964—torrent or trickle?

The forked rod vibrated a little! Our most recent survey indicates manufacturers in the Philadelphia Metropolitan Area plan to spend \$327 million on plant and equipment in 1964. This represents a decline—6 per cent—from the 1963 final estimate of \$349 million. Throughout the other areas surveyed the pattern is the same, with the exception of the Wilmington

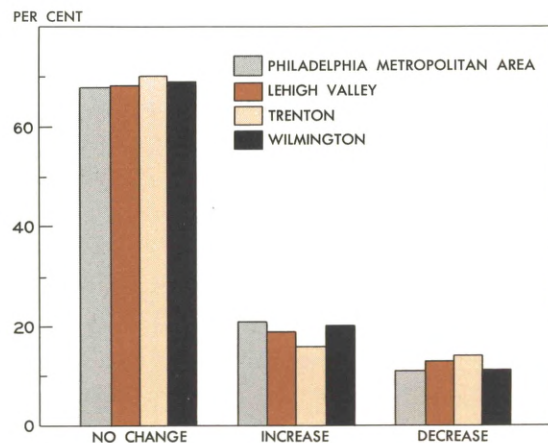
<sup>1</sup> The survey includes manufacturing firms in four standard metropolitan statistical areas: Philadelphia, Wilmington, Trenton, and Allentown-Bethlehem-Easton.

## ESTIMATED CAPITAL EXPENDITURES OF MANUFACTURERS DELAWARE AND LEHIGH VALLEYS

Region and Industry	Expenditures (millions of dollars)		Percent Change 1963-1964
	1963	1964	
Philadelphia Metropolitan Area			
All Manufacturing	\$349.1	\$326.9	- 6.4%
Durables	137.4	130.9	- 4.7
Lumber & furniture	1.5	1.6	+ 6.7
Stone, clay, & glass	22.0	17.3	- 21.4
Primary metals	15.5	21.9	+ 41.3
Fabricated metals	20.9	17.5	- 16.3
Machinery (excl. elec.)	29.2	28.3	- 3.1
Electrical machinery	28.6	29.4	+ 2.8
Transportation equipment	11.9	6.6	- 44.5
Instruments & miscellaneous	7.8	8.3	+ 6.4
Nondurables	211.7	196.0	- 7.4
Food & tobacco	45.8	28.3	- 38.2
Textiles	12.2	15.9	+ 30.3
Apparel	3.0	1.9	- 36.7
Paper	23.4	33.1	+ 41.5
Printing & publishing	18.7	7.8	- 58.3
Chemicals	68.9	68.3	- 0.9
Petroleum & coal	39.2	40.2	+ 2.6
Rubber & leather	0.5	0.5	0
Lehigh Valley			
All Manufacturing	68.6	45.9	- 33.1
Durables	56.0	34.3	- 38.8
Nondurables	12.6	11.6	- 7.9
Trenton			
All Manufacturing	22.3	19.1	- 14.4
Durables	14.8	13.6	- 8.1
Nondurables	7.5	5.5	- 26.7
Wilmington			
All Manufacturing	44.8	54.1	+ 20.8
Durables	10.2	20.6	+102.0
Nondurables	34.6	33.5	- 3.2
Total (4 areas)	484.8	446.0	- 8.0

### ANTICIPATED CHANGE IN CAPITAL EXPENDITURES 1964-65

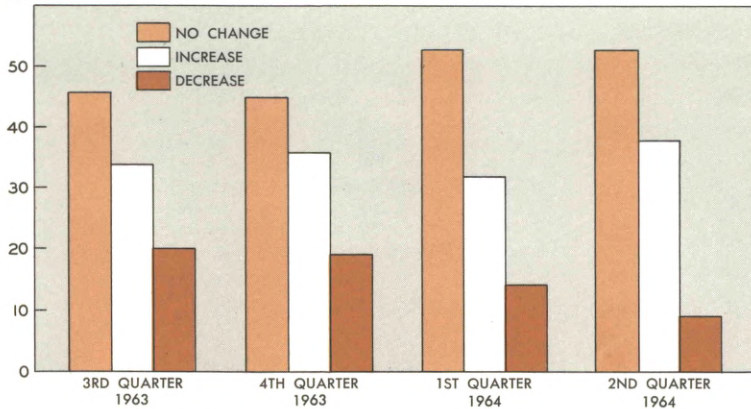
Delaware and Lehigh Valleys.



EXPECTATIONS OF MANUFACTURERS—PHILADELPHIA METROPOLITAN AREA

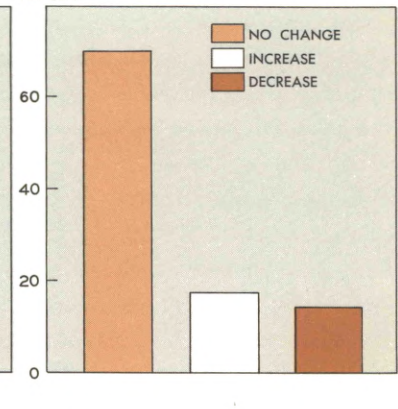
*Production trend.*

PER CENT



*Inventory expectations for 1964.*

PER CENT



area. Lehigh Valley and Trenton registered declines—33 and 14 per cent, respectively. Wilmington, however, flows in the other direction. Burgeoned by the durable goods manufacturers in that area, Wilmington anticipates an increase of 21 per cent over its 1963 capital expenditures. For the entire area surveyed, the investment stream anticipated for 1964 is a bit smaller than 1963—\$446 million versus \$485 million, a decline of 8 per cent.

Looking further into the future, manufacturers were asked to reveal their thoughts on capital expenditures for 1965. Since 1965 is more remote, we asked simply for an indication of the anticipated direction of change in capital expenditures for 1965. The pattern of expectations among the four areas reveals a high correspondence of feelings about the future. In each of the areas surveyed, about the same proportions—approximately 68 per cent—see little change in expenditures for 1965. Among those who foresee changes, the scales balance in the direction of increased expenditures.

**Production, inventory, and employment**

Opinion regarding production trends is divided

almost evenly between those who foresee no substantial change occurring through the second quarter of 1964 and those who predict some change. Among the manufacturers who anticipate change, the vast majority are optimistic. In the second quarter 1964, for example, 38 per cent of all manufacturers anticipate increases in production.

On balance, little change in inventory accumulation is expected during 1964. Most firms—70 per cent—see no change in inventories, while

**EMPLOYMENT EXPECTATIONS OF PHILADELPHIA MANUFACTURERS**

Industry	QUARTERLY INDEXES (Third Quarter = 100)			
	1963		1964	
	Third	Fourth	First	Second
All Manufacturing	100.0	99.4	100.2	100.1
Durables	100.0	99.3	100.6	100.2
Lumber & furniture	100.0	93.1	91.8	97.9
Stone, clay & glass	100.0	99.2	102.5	102.9
Primary metals	100.0	100.2	99.6	100.8
Fabricated metals	100.0	99.7	100.3	101.7
Machinery (excl. elec.)	100.0	100.6	101.7	102.8
Electrical machinery	100.0	98.0	102.9	102.1
Transportation equipment	100.0	97.6	95.9	91.6
Instruments & misc.	100.0	100.2	102.3	102.7
Nondurables	100.0	99.4	99.8	100.0
Food & tobacco	100.0	99.7	99.5	99.6
Textiles	100.0	97.4	98.6	99.4
Apparel	100.0	104.0	107.5	106.0
Paper	100.0	98.9	98.7	99.5
Printing & publishing	100.0	99.1	98.8	99.4
Chemicals	100.0	99.2	99.2	99.5
Petroleum & coal	100.0	98.1	97.1	97.0
Rubber & leather	100.0	103.4	103.4	101.7

the changes that are foreseen approximately cancel out on a percentage basis. It should be noted, however, that the percentage changes do not reflect the dollar amounts of change for the manufacturers who see change occurring. Yet, the over-all pattern is shaped in the direction of no change.

Employment estimates produce a picture of relative stability. Using the third quarter 1963 as a base, indexes for the next three quarters show little change in employment levels. For the Philadelphia area, all manufacturing firms expect employment in the middle of 1964 to be only 1 basis point (1/10th of 1 per cent) higher.

The results of this Bank's most recent "dowsing" expedition appear, then, to reflect relatively small change in aggregate expenditures on plant and equipment for 1964, with approximately the same levels of production, inventory, and employment. Neither torrent nor trickle has been located; rather, a somewhat diminished flow of investment, at a lesser rate than the previous year.

### The "earth-juice" theory

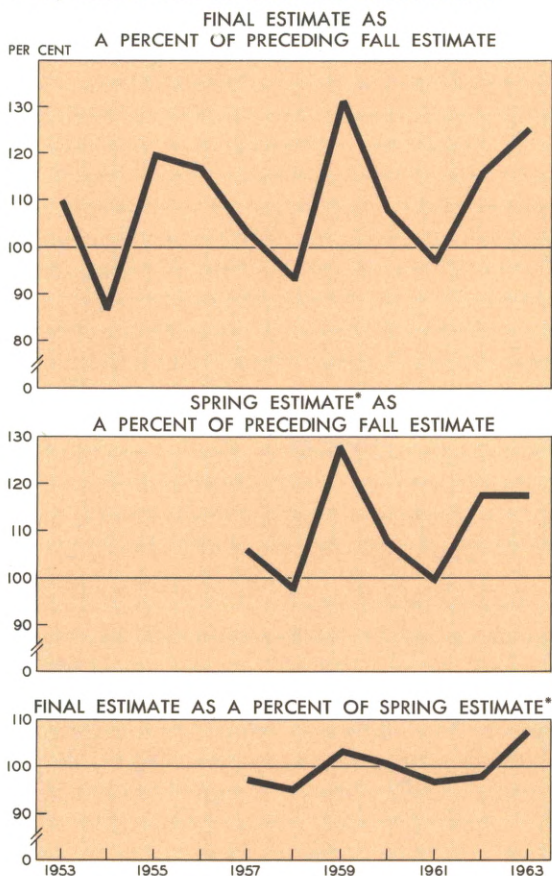
Readers may not agree that a reduction of 8 per cent in capital spending represents a "relatively small change" in the investment stream. An explanation is warranted.

Among dowers, there is a strong preference to dowse in the spring. Their efforts are more often successful in that season. There is a sort of theory underlying the causes for different degrees of success depending on the season of the year. This theory might be named the "earth-juice" theory. In short, the theory postulates that the divining rod, qua survey, gives more reliable readings in the springtime because all the juices of the earth are flowing more freely.

### COMPARISONS OF CAPITAL EXPENDITURE ESTIMATES

*All manufacturing industries—Philadelphia Metropolitan Area.*

*In each of the charts below, an estimate occurring later in time is expressed as a percentage of an earlier estimate. Points below 100 indicate the prior figure was an overestimate; above 100 signifies underestimation. The charts show that the year-ahead estimates tended to be low, except for the recession years of 1954, 1958, and 1961. Subsequently, the fall estimates have been revised upward. The spring estimates, however, tended to be closer to actual expenditures. These errors were almost evenly divided between under and overestimation.*



\* Not available prior to 1957.

The "earth-juice" theory leads one to speculate that there may be some seasonal factor which influences this Bank's survey of capital expenditures. Looking back over the experience

of the survey, one can see a pattern emerge. To see the pattern, we computed various ratios using the data gathered in past surveys.

In summary, experience reveals that firms tend to underestimate when they are projecting capital expenditures a year ahead. Subsequently, in the spring, they tend to revise their estimates upward. Lastly, the margin of error of estimates is considerably reduced in the spring survey. This may be accounted for by two factors:

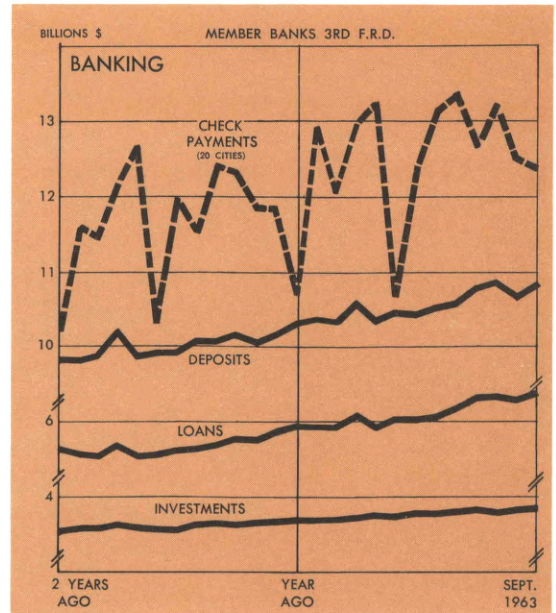
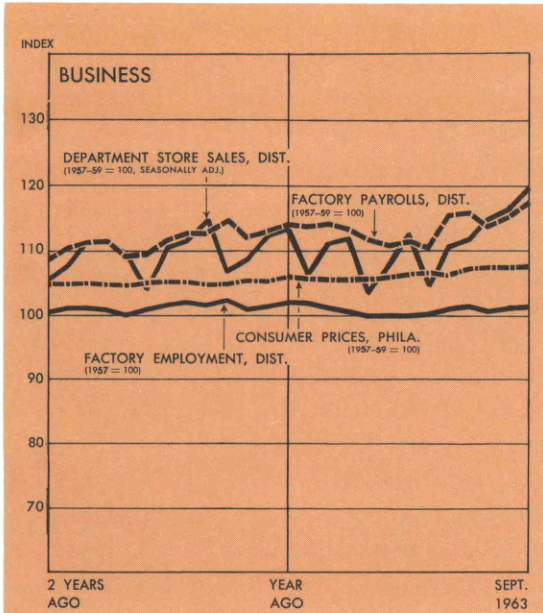
1. The projections are for a shorter time span; and
2. the patterns in the economic fabric of the year stand in deeper relief when viewed from the springtime. By that time, the firms know better what to expect for the year.

### **And a speculation**

One cannot help but speculate on why the current survey reveals "cautious pessimism" for the year 1964. In 1963, investment received stimulus from the tax credit program written into the 1962 tax law. Looking to the future, however, it may be that there is considerable

uncertainty developing in the minds of businessmen regarding prospects for the tax bill currently being considered by Congress. In this bill, the investment credit will be more attractive. Furthermore, the tax cut is designed to promote increased consumption expenditures. The effects of an increase in consumer spending are certainly less direct on investment in plant and equipment. First, manufacturers will increase output by greater utilization of existing capacity; thus there will be a lag between the time when increased consumer expenditures register in the market place and the signal goes up for increased expenditures on new plant and equipment. The current survey may indicate manufacturers' anticipations are not high for 1964, because they feel the tax cut will not come until later in 1964, and it will take more time for the effects of the tax cut to be felt in the market. They appear to have adopted a "wait-and-see" attitude. Their attitudes on investment in plant and equipment, inventory, employment and production trends lend credibility to this kind of speculation.

# FOR THE RECORD...



## SUMMARY

	Third Federal Reserve District			United States		
	Per cent change			Per cent change		
	Sept. 1963 from		9 mos. 1963 from year ago	Sept. 1963 from		9 mos. 1963 from year ago
	mo. ago	year ago		mo. ago	year ago	
<b>MANUFACTURING</b>						
Production.....	.....	.....	.....	+ 4	+ 5	+ 5
Electric power consumed.....	- 2	+ 8	+ 5	.....	.....	.....
Man-hours, total*.....	+ 1	- 1	- 2	.....	.....	.....
Employment, total.....	0	0	- 1	+ 1	+ 1	+ 1
Wage income*.....	+ 2	+ 3	+ 1	.....	.....	.....
<b>CONSTRUCTION**</b>						
.....	+ 5	+12	- 6	- 9	+13	+ 8
<b>COAL PRODUCTION</b>						
.....	+ 2	+21	+10	- 2	+12	+ 7
<b>TRADE***</b>						
Department store sales.....	+ 3	+ 6	0	- 5	+ 2	+ 4
Department store stocks.....	+ 2	+ 3	.....	.....	.....	.....
<b>BANKING</b>						
(All member banks)						
Deposits.....	+ 1	+ 5	+ 5	+ 3	+ 8	+ 7
Loans.....	+ 2	+ 8	+ 8	+ 2	+12	+11
Investments.....	+ 1	+ 4	+ 5	+ 1	+ 4	+ 4
U.S. Govt. securities.....	0	- 3	- 1	+ 2	- 5	- 3
Other.....	+ 3	+22	+19	+ 1	+23	+23
Check payments.....	- 1†	+15†	+ 7†	+ 3	+18	+10
<b>PRICES</b>						
Wholesale.....	.....	.....	.....	0	- 1	0
Consumer.....	0‡	+ 2‡	+ 2‡	0	+ 1	+ 1

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

‡20 Cities  
 †Philadelphia

## LOCAL CHANGES

	Factory*				Department Store†				Check Payments	
	Employment		Payrolls		Sales		Stocks			
	Per cent change Sept. 1963 from		Per cent change Sept. 1963 from		Per cent change Sept. 1963 from		Per cent change Sept. 1963 from		Per cent change Sept. 1963 from	
	mo. ago	year ago	mo. ago	year ago	mo. ago	year ago	mo. ago	year ago	mo. ago	year ago
Lehigh Valley.....	0	- 1	+ 1	+ 3	.....	.....	.....	.....	- 3	+18
Harrisburg.....	- 1	0	0	+ 4	.....	.....	.....	.....	- 5	+24
Lancaster.....	- 1	- 1	- 2	- 2	- 3	+ 4	+ 1	- 1	- 2	+12
Philadelphia.....	0	- 1	+ 2	+ 1	+ 4	+ 6	+ 3	0	- 2	+17
Reading.....	+ 1	0	+ 3	+ 9	- 6	+ 4	+ 5	0	- 5	+11
Scranton.....	- 1	- 4	0	- 1	- 1	+ 2	0	+ 6	- 5	+ 7
Trenton.....	+ 2	+ 8	.....	.....	- 1	+10	0	+17	- 4	+24
Wilkes-Barre.....	0	+ 1	+ 2	+ 6	- 6	+ 1	0	+10	+ 3	+13
Wilmington.....	+ 2	+ 4	+ 7	+ 6	+22	+12	+16	+15	+ 5	+11
York.....	0	- 1	- 1	+ 2	-12	- 8	+ 2	- 1	- 2	+11

\*Not restricted to corporate limits of cities but covers areas of one or more counties.  
 †Adjusted for seasonal variation.