

# January



Can Credit Controls Be Controlled?

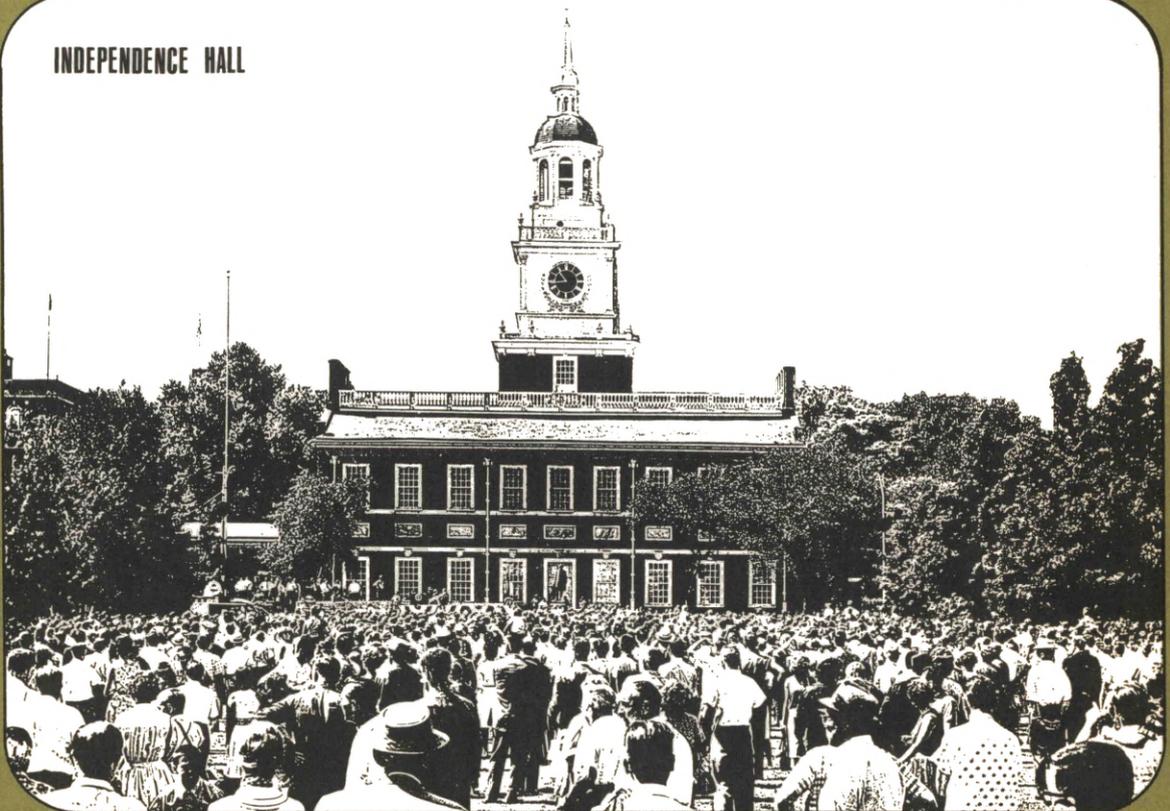
District Economy in '71 — On the Way Up

A Salute to King Coal

**FEDERAL RESERVE BANK of PHILADELPHIA**

# business review

**INDEPENDENCE HALL**



**1972**

### **Can Credit Controls Be Controlled?**

. . . Selective credit controls are gaining in favor, but can they be as selective as proponents hope?

### **District Economy in '71 — On the Way Up**

. . . Although unemployment trended upward in the District last year, the regional economy showed some signs of a moderate build-up.

### **A Salute to King Coal**

. . . The Methuselah of the fuel industries may be Number 3 now, but new technology and coal's bountifulness indicate there's plenty of life in the old boy yet.

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# Can Credit Controls Be Controlled?

by James M. O'Brien

*The Federal Reserve Bank of Philadelphia is sponsoring a study of selective credit controls. The study includes investigations of their equity, efficiency, and workability. The conclusion of this article bears on only one aspect of these controls — their tendency to expand. An examination of other aspects of the selective credit issue is necessary before general policy conclusions can be reached.*

Last year Buildmore Industries added a giant new skyscraper to its arsenal of capital, a full two stories higher, management said, than the "Tower of Babel" built the year before by its closest competitor. This year Gofast Motor Corporation has begun construction of three new plants strategically located, according to its "Letter to the Stockholder," to keep more Americans on the move even more. These and other corporate expansions no doubt are designed to increase profits, but what do they do to society's welfare? It is now part of the conventional wisdom that the products turned out by free enterprise are not necessarily those that fill our bag of national priorities.

Many public-spirited citizens, though inhabitants of skyscrapers and drivers of autos, are prodding their elected officials to help keep capitalism on the right track. Instead of another auto plant in Detroit or a new

skyscraper in Cleveland, why not an additional schoolhouse in Poughkeepsie or a zoo in Sheboygan? Suggestions for giving the country's economic engine more direction have been advanced for some time. One that is gaining in favor is something called selective credit controls.

## AIMING CREDIT

Since credit finances a hefty chunk of our production costs, the argument goes, selective alteration of the flows of credit can be a cheap but effective means to rechannel the flow of resources. This policy would make it more (or less) expensive to finance projects according to their social priority. For example, housing construction might get a shot in the arm if the government subsidized mortgage payments, and business investment might be turned off a little by a special tax on interest from

corporate bonds. If government could induce Buildmore's banker not to lend to Buildmore, there might be one less skyscraper and, possibly, one more schoolhouse.<sup>1</sup>

Selective credit controls are usually seen as an alternative to direct government spending on social goods. Credit controls supposedly entail fewer administrative costs for the government and substantially less interference in the economic affairs of its citizens. So proponents argue that by giving credit a push here and a pull there, we can maintain some control over our economy without giving up the best features of free enterprise.

### LIKELY GROWING PAINS

Few solutions to economic problems are perfect. A cloud that comes with the silver lining of selective credit controls is replete with loopholes. The ingenuity of economic man and the malleability of markets seem limitless, and no legislation yet has been able to plug all possible loopholes. Consequently, if selective credit controls are to be effective, more and more government regulation is likely to be required to block escape hatches as they develop.

Suppose, for example, the powers-that-be decide we are building too many skyscrapers and that the best medicine is selective credit control. Soon, a tax or some form of restriction is imposed on the income earned by banks on skyscraper loans. The tax is limited to banks because these are the main suppliers of credit to builders of skyscrapers, and the regulatory agency wishes to limit the regulation and policing. Before long, banks might well be out of the skyscraper loan business as untaxed lenders, such as mortgage and finance companies, find themselves with a competitive advantage. They

now make skyscraper loans instead of the banks. Soon regulation will have to be extended to these lenders as well. And, on and on will go the confrontation between loopholes and regulation.

In the end, limiting selective credit controls to a specific type of lender will likely prove difficult, causing regulators to redefine their control in terms of uses and types of credit. Yet, expectations may still outstrip realities. If the government regulated automobile credit, for example, it might reduce the volume of auto credit without much reducing the amount of credit for auto-financing. Suppose controls were imposed on auto credit. Rather than financing, say, 50 per cent of the car on credit, you might finance only 30 per cent, and spend what you had saved for a new TV to make up the difference. Then you could *borrow* to buy the TV. And although *you* might not resort to such deviousness, your neighbor might claim that his loan is for home improvements when it's really for a new automobile.

How might authorities determine the ultimate purpose of credit? There are two approaches, each leading to more interference. One is an examination and policing of the uses of credit not being intentionally regulated. For example, the regulators might have lenders submit for review all consumer loans so as to reduce the substitution of auto credit for other forms of consumer credit. This way would be expensive both to regulators and lenders. Increased costs of processing loans for supposedly nonregulated uses would tend to discourage these loans as well as the intentionally regulated ones. The other alternative is expanding the regulations to other uses of credit that would be difficult to distinguish from the intentionally regulated use. For example, credit for purchasing consumer durables might be brought under the auto credit controls. While regulators may lean toward the latter approach, because the direct cost to them is likely to be less, both ways lead

<sup>1</sup> A limited use of selective credit controls already exists. Various types of credit subsidies are used to aid the financing of housing, a tax exemption is given on income earned from municipal bonds, and credit for purchasing or carrying securities is subject to margin requirements (the last will be analyzed below).

to extending the selective credit controls to uses of credit not intended for regulation.<sup>2</sup>

And as controls expand to new lenders and to new uses of credit, so does the role of the Government in the economy. The result is increased cost to both regulator and regulated, reduced efficiency of economic markets, and more governmental interference in private decisions. This, of course, does not mean that selective credit controls must be counted out; it merely means that we must approach them with the same careful evaluation of costs and benefits demanded by any proposed economic policy.

### A LESSON FROM HISTORY: WIDENING THE NET

When stock prices plunged in the fall of 1929, Americans saw their hard-earned savings evaporate. Everyone has his own theory of what went wrong, but for many the culprit was "excessive" use of credit. Before the Great Crash, this theory goes, credit provided optimistic investors the wherewithal to bid up stock prices to supposedly unsustainable levels that led to the sharp and deep price contraction of October 1929. Spurred by its responsibility to the public

welfare, Congress enacted legislation in 1934 aimed at reducing "excessive" use of credit for equity purchases. The Board of Governors of the Federal Reserve System was given the responsibility of administering the law. The Board was empowered to set a lower limit on the down payment that a borrower makes when he borrows for the purpose of buying or carrying equity. For example, the current limit is 55 per cent which means a borrower must put down at least 55 per cent of the price of the security at the time of purchase. This limit or margin requirement has ranged between 40 and 100 per cent in past years but has always been substantially above what security credit lenders usually required before 1934.

Margin requirements on security credit provide us with a good example of this country's experience with clear-cut selective credit controls. On the books since 1934, margin requirements aim to limit credit flowing to a specific type of use—equity purchases. In later years, security credit regulation has tended to loosen its selectivity regarding who and what type of credit fall under its net.

**Bringing in Previously Unregulated Lenders.** Initially the Federal Reserve Board imposed margin requirements only on credit extended by brokers and dealers (Regulation T).<sup>3</sup> In 1934 only brokers and dealers were extending much security credit; consequently, there was no immediate need to regulate other lenders. However, as the stock market rebounded in the spring and summer of 1936, John Q. Investor found his banker a convenient source of security credit and a convenient alternative to his regulated broker. Nineteen months after the regulation of brokers' and dealers' credit,

<sup>2</sup> Selective credit controls can take the form of a subsidy rather than a tax. When a subsidy is used to reduce the costs of acquiring or extending a particular type of credit for a particular use, the problem confronting the regulatory authorities is how to keep everyone from jumping on the bandwagon. If home building is the favored type of investment, a "house" may be a home with a decreasing frequency. Borrowers, for any purpose, can be expected to seek the cheapest source of credit. In addition, there will be some incentive for privileged individuals or groups to borrow "low" (borrow from the subsidized source) and lend "high" (lend these funds for nonsubsidized uses). As with restrictive credit controls, the regulatory agency must have the means to determine the ultimate uses of credit. It will have to have some control over the portfolio activities of lenders that exceeds the specific types of credit and investment purposely being subsidized. As lenders and borrowers become more familiar with the workings of the regulations, greater controls may become necessary.

<sup>3</sup> The margin regulation applied to brokers and dealers belonging to national security exchanges and those doing business with such members. A primary source of reference for the factual history of security credit regulation is Frederic Solomon and Janet Hart, "Recent Developments in the Regulation of Security Credit," *Journal of Public Law*, XX (1971), 167-213.

therefore, the Board applied margin requirements to security credit extended by banks (Regulation U). The Board argued that control of banker's security credit was necessary for fair and effective regulation. The net of security credit regulation had begun to widen.

With the extension of margin regulations to bankers' credit, many borrowers during the 1950's and 1960's switched to lenders traditionally not given to extending security credit.<sup>4</sup> Ironically, these unregulated lenders would often obtain their credit from banks with little or no margin. After several limited attempts at reducing the circumventions, the Board, in 1968, applied margin requirements to credit from any domestic lender not currently subject to them who made security credit an important part of its business. This extension brought under regulation security credit being extended by tax-exempt foundations, partnerships, corporations, factors, credit unions, and savings institutions among others. Thus the Board brought all domestic lenders under its control; but regulation of lending sources had still not come the full route.

Foreign lending in the 1960's revealed another flaw in the security credit regulations. Some investors borrowed from foreign banks to buy securities at a margin lower than that required on domestic security credit. Since foreign banks can and do borrow from U.S. sources, they became an intermediary process in the circumvention of margin requirements. In compliance with the Foreign Bank Secrecy Act of 1970, the Board of Governors for the first time required borrowers to comply directly with margin regulations whenever they borrowed

<sup>4</sup> In 1963 the Securities Exchange Commission, in its Special Study of the Securities Markets, contended that unregulated lenders were more important than ever before. The Study identified 58 lenders of security credit and noted that there was evidence of numerous others that operate quietly with a small amount of customers. The study recommended that unregulated lenders be controlled.

to buy or carry securities (Regulation X). The practical effect of this regulation is to bring security credit obtained from foreign sources under regulation.

**Bringing Unregulated Credit Uses Under Security Credit Regulation.** The purpose of margin requirements was, and is, to restrict the "excessive" use of credit for purchasing and carrying equity. Credit extended for other purposes is not intended to be regulated. However, faced with the dilemma of determining the true purpose of credit, the regulators have felt the need to extend their authority, at least marginally, into other uses of credit.<sup>5</sup>

Although regulating credit for purchasing or carrying bonds is not an objective of margin requirements, the Board, in 1967, felt that it had to subject convertible bonds (bonds which can be exchanged into stock at the option of the holder) to margin requirements. When John Q. Investor buys a convertible bond, it is often with the intention of switching it for stock. Before 1967 this option provided the investor with a way of purchasing equity without being subject to margin requirements. To close this loophole the Board announced that it would impose margin requirements on convertible bonds. However, the requirements were lower than those on true equity, apparently to compromise with the borrower who does not intend to make the switch to equity.

During the 1960's an extension into life insurance came about because of the increased popularity of equity funding plans offered by mutual funds, by which the investor received a package of mutual fund shares and life insurance. The plan is especially attractive to the investor interested in buying both insurance and stocks. He can pay cash for the stock or equity and then

<sup>5</sup> It is possible that there currently exist loopholes or circumventions more serious than those which have been closed or stopped because the cost of closing these was judged to be too great.

borrow on it to pay the insurance premium. The Board ruled in 1969 that it would regard credit for purchasing life insurance in this plan as subject to margin requirements when the equity is used as collateral. Here again another difficulty arises concerning the true nature of security and nonsecurity credit, and the applicability of selective controls.

Because of the difficulties and costs involved in detailed regulation of lenders other than banks and brokers, the Board has put some limits on their nonsecurity credit. An example is that these lenders may not have both security and nonsecurity credit outstanding to the same borrower.

Security credit regulation has been plainly predisposed to expansion. Its growth indicates the difficulty of limiting a credit control to a specific type of lender. Originally covering only brokers' and dealers' credit, security credit regulation now embraces the gamut of lenders. Difficulties of limiting the control to a specific use of credit are also illustrated. Determining the ultimate purpose of a loan is a difficult and expensive task<sup>6</sup> so that, when faced with uncertainty as

to the use of a type of credit, regulators have often widened the uses of credit being regulated.

### CONTROLLING CREDIT COULD BE COSTLY

If society desires a reorientation of productive resources toward more "socially" oriented goals, it will have to pay the price. The price tag will include not only the "private" products lost by shifting resources from their production to the production of social goods, but also the cost of transferring the resources. Resources will be used in maintaining a government agency to carry out the policy and in requiring private individuals or businesses to meet legal requirements (such as keeping records). There will also be a political cost in the sense that government will play a larger role and the individual a smaller one in choosing what he does with his own resources or income. In short, there will be no free lunches.

While there may be no free lunches, some lunches may be cheaper than others. Selective credit control proponents feel that their policy would be an inexpensive way to rechannel resources to achieve social goals. And they may well be right. However, both reason and at least some experience with this approach suggest that controls, if they are to be effective, will expand to plug existing and developing loopholes. Expansion makes selectivity more difficult and raises the cost to society. These added costs must be recognized when evaluating the merits of selective credit controls.

Selective controls, then, may be compared to an artificial organ, and the U. S. economic system to the human body. A doctor of medicine would be negligent if, in implanting the artifact, he did not consider the full effects that such an operation would

<sup>6</sup>The costs associated with margin regulation of security credit are difficult to assess although they have probably not "gone through the roof." Part of the burden has fallen on existing regulatory bureaus or organizations so that these costs become submerged with that of its other activities. Part of the burden has also probably fallen on those regulated as they have had to determine whether they should impose margin requirements on credit they extend. If these lenders take this responsibility seriously, then they too (and their customers), incur part of this policing cost. Security credit lenders also bear the costs of the increased paper work required to meet the Board of Governors registration and reporting requirements. Perhaps even more difficult to assess is the effectiveness of security credit regulation in reducing the excessive use of security credit. Partly the problem is in defining what is "excessive use of security credit" and partly there is a problem of isolating the effects of margin requirements on the "excessive" indicators. See Bogen, J. L., and Kroos, H. E., *Security Credit* (Englewood Cliffs, N.J.: Prentice-Hall, 1960), pp. 114-127; Cohen, J., "Federal Reserve Margin Requirements and the Stock Market," *Journal of Financial and Quantitative Analysis*, 1 (September, 1966), 30-54;

Moor, T. G., "Stock Market Margin Requirements," *Journal of Political Economy*, LXXIV (April, 1966), 158-67.

have on the patient. A "doctor" of political economy would likewise be negligent if, in advocating selective credit controls, he failed

to consider the problems and complications that can be expected to follow the attempt to selectively control credit. ■

#### **FORECASTS FOR 1972 NOW AVAILABLE**

The Department of Research has compiled and analyzed a number of predictions for 1972 made by businessmen, economists, and Government officials. This compilation includes a summary of forecasts for the economy as a whole as well as for particular sectors of the economy. The more important indicators are presented in chart form.

Copies of this release are available upon request from Public Services, Federal Reserve Bank of Philadelphia, Philadelphia, Pennsylvania 19101.

## District Economy in '71 — On the Way Up

by Kathryn L. Kindl

Economic activity in the Third Federal Reserve District built up slowly in 1971. In both the region and the nation, construction gains laid the groundwork for a year of hesitant recovery. By mid '71, retail sales in the District showed some signs of strengthening. Nevertheless, unemployment continued to climb through '71. Those who were employed saw their earnings rise, but—especially prior to NEP\*—inflation took a heavy toll.

### LOCAL LUMINARIES

Solid gains in building construction and, after midyear, modest improvement in retail trade paved the way for some firming of the regional economy in 1971. Although economic advances fell short of hopes for swift recovery in all sectors of the economy, the bright spots were indeed welcome following the generally depressed conditions of 1970.

Particularly striking was the turnabout in private residential and nonresidential building construction. Nationally, awards of build-

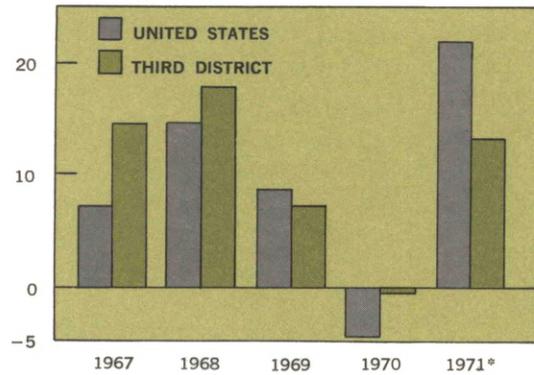
ing construction contracts advanced 22 per cent, while in the Third District private building awards moved ahead 13 per cent. Although lagging the nation, the regional gain last year was a big improvement over the .6 per cent decline registered in 1970. When awards for public construction are included, the Third District did slightly better than the nation in 1971. Total construction contract awards—residential and nonresidential building plus public works construction—rose over 18 per cent in the District, almost 2 per cent ahead of the national step-up.

As the District economy started to get off the ground, consumers began to show less reluctance to spend. Auto sales especially bounced back vigorously. A look at the chart reveals that registrations of new passenger cars (a rough proxy for new car sales) picked up markedly during '71. General retail activity, except in the Lancaster area, however, did not show the same bounce, at least through midyear. But unofficial soundings of department store executives in the Third District since midyear suggest that retail sales were more buoyant during the closing months of 1971.

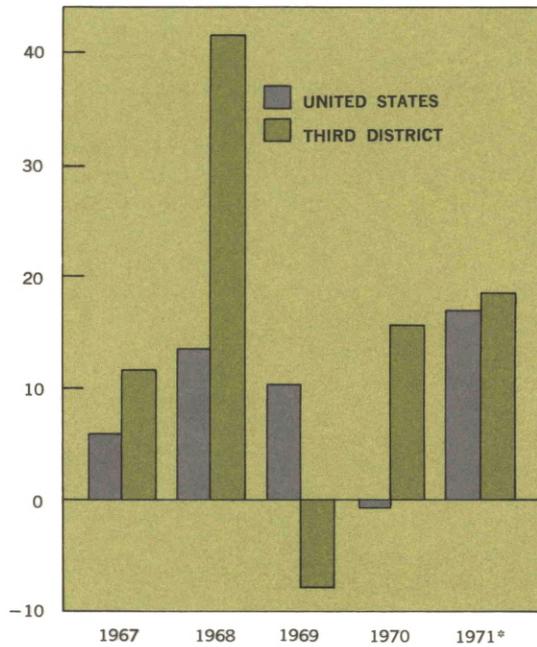
\*NEP (New Economic Policy) refers to the economic programs announced by the Administration on August 15, 1971, and afterward.

ROBUST GAINS IN CONSTRUCTION  
CONTRACT AWARDS . . .

Percentage Change in Value of Residential and Nonresidential Building Construction Contracts Awarded

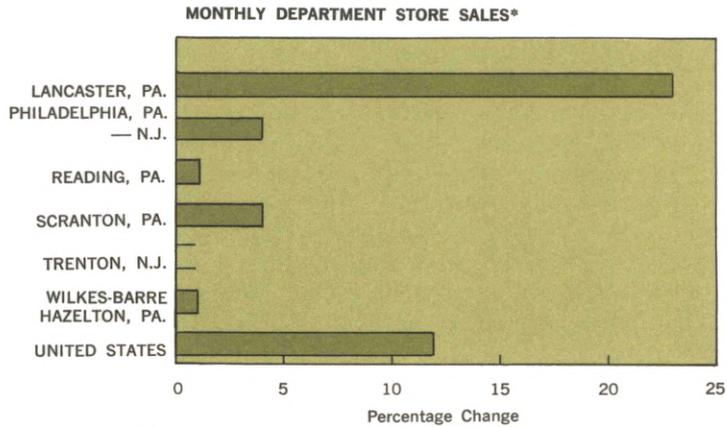


Percentage Change in Value of Total Building and Public Works Construction Contracts Awarded

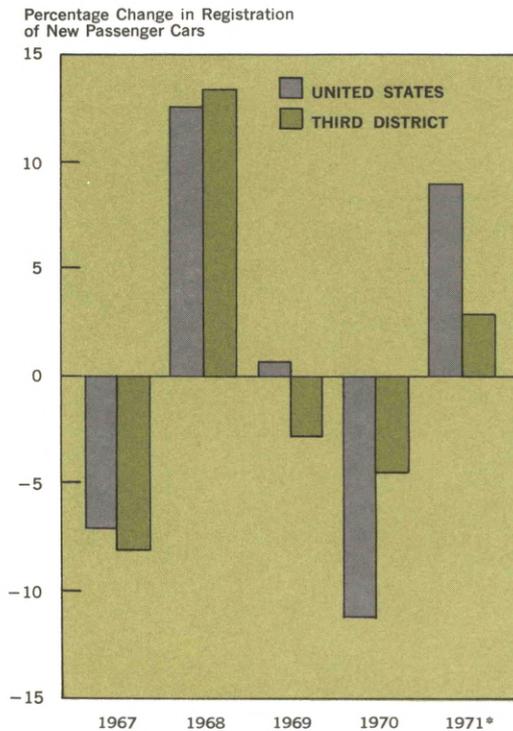


\*Based on first 11 months.  
Source: F. W. Dodge Corp.

AND A MODEST UPTURN IN RETAIL  
ACTIVITY STIRRED THE REGIONAL  
ECONOMY IN '71.



\*Based on first 7 months.  
Source: Department of Commerce, SMSA Basis.



\*Based on first 10 months.  
Source: U.S. Data, Automotive News.

**UNEMPLOYMENT — A LONGER SHADOW**

An unemployed worker is unlikely, however, to be a spendthrift consumer. And, despite some upswing, recovery of the regional economy was not strong enough to hold down unemployment. Not only did employment in the District decline and unemployment rise, but also the average work week increased only slightly from the depressed level of 1970.

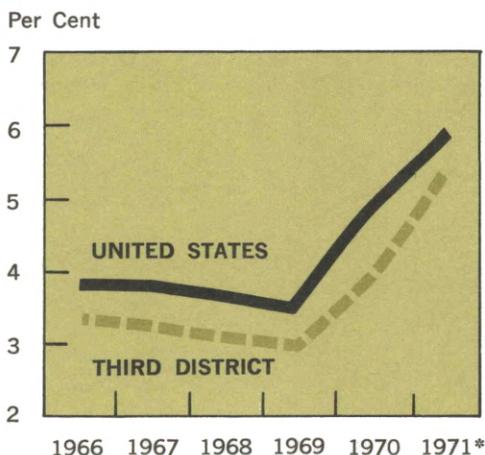
In contrast to 1970, in 1971 the rise in the rate of District unemployment exceeded that of the nation. Nationally, the unemployment rate fluctuated around 6 per cent during

most of 1971. But the unemployment rate in the region trended upward in '71, and, as the end of the year neared, the rate of unemployment in the District stood seven-tenths of a percentage point higher than in January.

This rise in unemployment in '71 appeared to be concentrated within the weak manufacturing sector. Manhours worked in manufacturing fell over 6 per cent last year, even more of a drop than in '70. And although most of the decline in manhours in '71 occurred before midsummer, factory activity remained sluggish through much of the second half of 1971 as well.

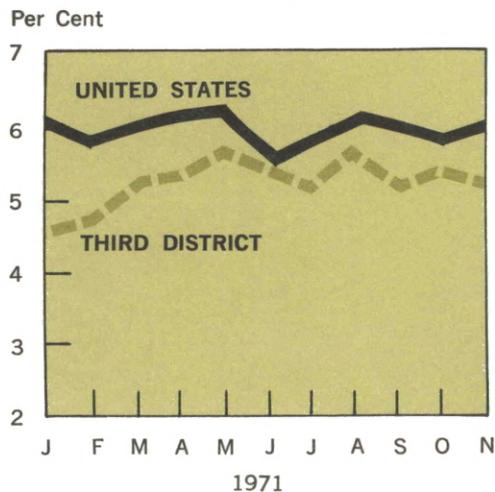
**HOWEVER, UNEMPLOYMENT CONTINUED TO RISE . . .**

**UNEMPLOYMENT**



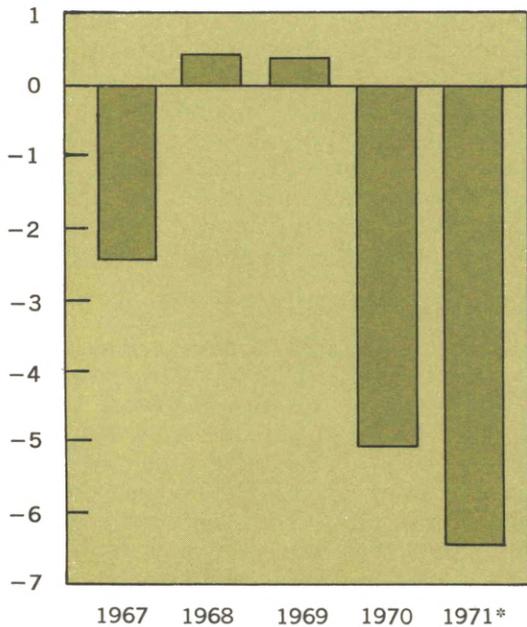
\*Based on first 11 months.  
Source: U.S. Data, Department of Labor.

**UNEMPLOYMENT**



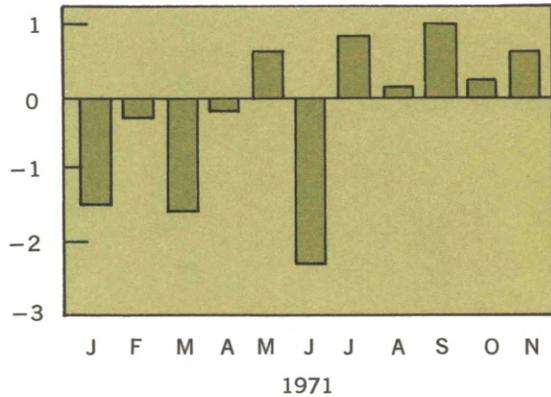
**AND MANHOURS TO FALL.**

Percentage Change in Manhours Used in Manufacturing in the Third District



\*Based on first 11 months.

Percentage Change in Manhours Used in Manufacturing in the Third District



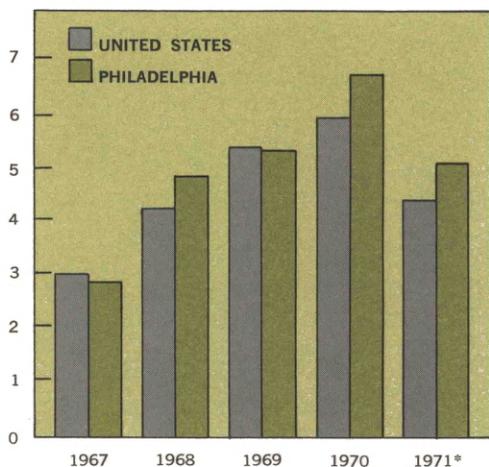
**THE WAGE-PRICE PICTURE**

Workers in the region earned more money in '71 — but they, and all other residents of the Third District, also faced higher prices. Both wages and prices continued to climb, regionally as well as nationally. Late last year NEP did, of course, exert downward pressure on increases in paychecks and price tags. Nonetheless, wages advanced faster than in 1970, but the rate of inflation slowed appreciably.

In real terms, therefore, the average wage earner in the region actually fared better during 1971 than during 1970, or during the expansive late 60's for that matter. The average worker in the Third District upped his real purchasing power by almost 3 per cent, outdistancing real gains posted by employees elsewhere in the nation.

**ALTHOUGH PRICES ROSE RAPIDLY,  
ESPECIALLY PRIOR TO NEP, . . .**

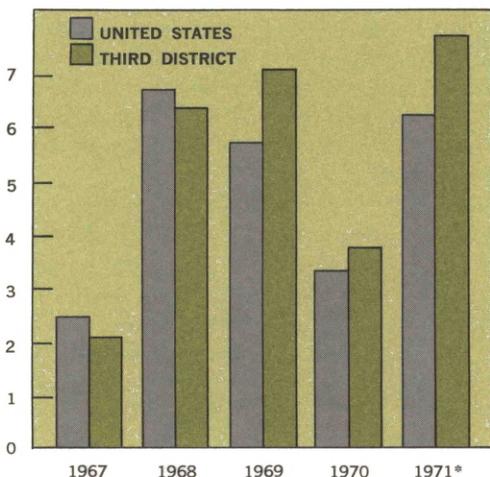
Percentage Change in  
Consumer Price Index



\*Based on first 11 months.  
Source: Department of Labor.

**LAST YEAR WAGE ADVANCES  
OUTSTRIPPED PRICE INCREASES.**

Percentage Change in Average  
Weekly Earnings in Manufacturing



\*Based on first 11 months.  
Source: U.S. Data, Department of Labor.

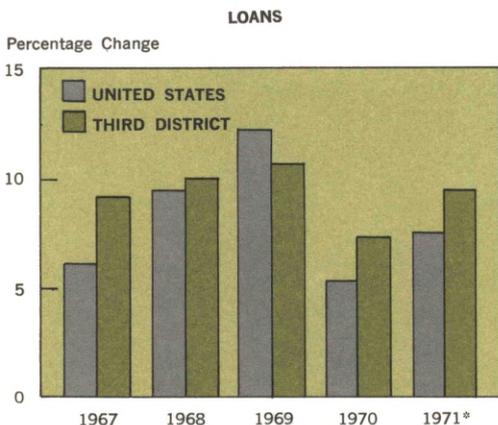
**BANKING — A MIRROR REFLECTION**

On the whole, banking trends last year reflected the moderate upturn occurring in the real sector. As the demand for loans improved modestly and funds became more readily available, loans by member banks advanced steadily. In fact, the increase in loans approved in the District during 1971 remained slightly ahead of the national pace. In the District, as well as across the nation, bankers' investment activities turned about dramatically. With monetary policy on a course of more moderate ease and following a downturn in securities holdings during 1970, investments by District member banks jumped over 25 per cent last year. Once again, activity within the District was stronger than in other areas of the country.

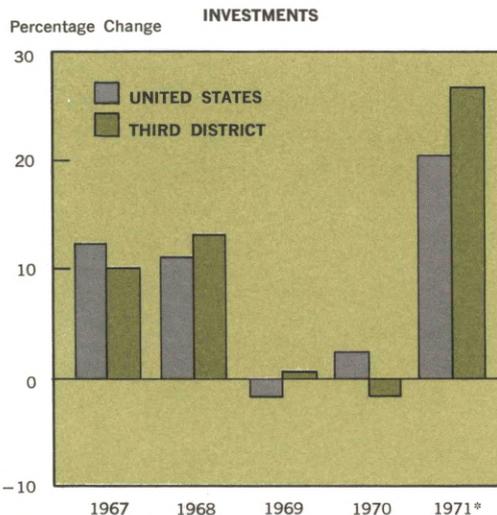
**ONWARD TOWARD '72**

In short, District policymakers and businessmen attempted in '71 to recoup some of the losses of the previous year. The regional recovery got off to a slow start, but, by year's end, retail trade and other non-manufacturing activities had picked up. And, as the impact of NEP begins to be felt throughout the entire economy, production and sales are likely to accelerate more rapidly. This improvement in economic conditions is consistent with the expectations of area executives, who anticipate some solid gains in regional business activity within the coming months (see box). The challenge of '72 is to sustain the recovery while holding the line on inflation. ■

IN GENERAL, BANKING DEVELOPMENTS IN '71 REFLECTED HESITANT GROWTH IN THE REAL SECTOR.



Note: Loans include both loans and discounts and apply for member banks only. Data is for last Wednesday of each month.  
 \*Based on first 11 months.  
 Source: U.S. Data, Board of Governors of the Federal Reserve System.



Note: Investments include U.S. Government obligations and other securities and apply for member banks only. Data is for last Wednesday of each month.  
 \*Based on first 11 months.  
 Source: U.S. Data, Board of Governors of the Federal Reserve System.

## THIRD DISTRICT BUSINESSMEN LOOK TOWARD '72

The Federal Reserve Bank of Philadelphia conducts a monthly Business Outlook Survey. This survey is designed to gain insight into current and near-term economic conditions in the Third District, an area that includes the eastern two-thirds of Pennsylvania, the southern half of New Jersey, and Delaware. Executives of manufacturing firms with 500 or more employees are polled with regard to their readings of local business activity.

Now four years old, the Business Outlook Survey was instituted at the request of the regional business community. Copies of the monthly summary of the Outlook Survey may be obtained by writing to Public Services, Federal Reserve Bank of Philadelphia, Philadelphia, Pennsylvania 19101.

### OUTLOOK FOR 1972

Business executives in the Third District are generally optimistic about the regional outlook for 1972, as many key indicators point toward a brisker pace of economic activity.

More than one-third of the Business Outlook Survey's respondents plan to boost the size of their work forces. About seven in ten anticipate a rise in both new orders and sales within the next six months. Also, the capital spending outlook is stronger now than it has been since early 1969. And inflationary psychology, which has diminished since mid 1971, is expected to be held in check this year.

In short, area manufacturers expect the tempo of business activity to quicken in the months ahead without a resurgence of inflation.

## A Salute to King Coal

by Evan B. Alderfer\*

Coal is an old industry — threatened by natural gas and petroleum, newly menaced by nuclear power. But it would be premature to write King Coal's obituary. To be sure, the coal industry has had a long life, but its future could conceivably be longer than its past because of the sweeping changes that are taking place in the broad field of energy. Coal is plentiful, widely distributed, and more popular than ever because of technological developments that make this fossil fuel more accessible, cheaper, and cleaner in a pollution-conscious age.

### HARD TIMES

Early in the twentieth century, oil and natural gas began edging gradually into the fuel market, a field so long dominated by coal that little thought was given them at

first. After World War II, however, the railroads, one of the major markets for the black rock, dealt the coal industry a near-fatal blow, when they shifted from coal-burning steam locomotives to oil-burning diesels. Within a comparatively short time, the 130-million-ton railroad market for coal disappeared completely. Although blast furnaces continued to use coke derived from coal to smelt iron ores, about half the steel works and rolling mills abandoned coal and coke for oil and natural gas, more convenient fuels for firing furnaces. Coal lost an additional third of its market when other manufacturing industries switched to oil and gas. Moreover, retail deliveries of soft coal for household heating shrank to a tenth of their former tonnage.

Only two soft coal markets improved — exports and sales to the electric power utilities. Exports more than doubled, and the electric utilities now burn four times their early post-World War II tonnage. The net

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\*Dr. Alderfer, now retired, is a former Economic Adviser of the Federal Reserve Bank of Philadelphia.

overall change leaves coal consumption about where it was a quarter-century ago.

The coal industry has hardly stood still. Quite the contrary: competitive fuels have forced the industry to make numerous improvements, especially in mining and marketing.

## COAL'S PROCESSING

### **Mechanizing to Meet the Challenge.**

Mechanization, more than anything else, has kept coal alive and competitive.<sup>1</sup> Over half the coal mined today is still obtained by tunneling underground, but pick and shovel have long since given way to power tools which have greatly increased productivity. Extensive use is made of the "continuous miner," a one-man-operated machine somewhat resembling a giant mole. With whirling teeth that rip coal from the seams and legs, the continuous miner sweeps the coals onto a conveyor for loading.

Another modern technique applicable in some mines is "longwalling." This underground process employs a power-driven, steel-tipped plow or whirling planer that shaves coal from a long surface, much like slicing cold cuts in a delicatessen. At the same time as the loosened coal tumbles onto a conveyor, movable hydraulic supports hold up the room — an important safety feature for the miners.

In strip mining, employed where coal seams lie near the surface, specialized machinery has greatly improved productivity. Power shovels first bulldoze the overlay of earth until the veil of coal is laid bare; then they scoop up the coal. The early power shovels and draglines scooped up only a few cubic yards of earth at a time. Today's largest power shovel is as tall as a 21-story building and gobbles up 270 tons of rock and dirt in one bite. As a consequence, the Geological Survey reports, that in strip min-

ing the "output per man-day is roughly 100 per cent higher, than in underground mining, average recovery is 60 per cent higher, and operating costs are 25-30 per cent lower." Currently, over a third of the industry's output comes from strip mines.

Though the productivity of the strip process is high, it surely lacerates the landscape! Removal of 25 to 50 feet of overburden to get at the coal seam leaves long windows of "spoil banks" with intervening trenches. After all the coal is extracted, the place is often left a desolate scene with rust-colored puddles of acid mine water, rubbish dumps, and abandoned equipment. Nevertheless, strip mining need not leave behind a scene of lunar desolation. In England and Germany, for example, topsoil is first removed and stored. Then, after removal of the coal, the land is returned to its former contour, and finally, the topsoil is replaced.

**Getting Coal to Market.** Getting coal to market has puzzled both mine owners and coal buyers. Most mines are far from markets, and coal is heavy and costly to haul. Railroads still do the lion's share of coal transportation. One approach to lower costs is the fleet train. Pennsylvania Power and Light Company uses a stable of five fleet trains of specially built coal cars that shuttle between coal mines in western Pennsylvania and the company's power plants in the eastern part of the state. Ten-thousand tons can be loaded and unloaded in a jiffy. And, the savings are certainly worth the investment in rolling stock.

The quest for lower-cost transport has also led to use of pipelines. Coal, finely ground and mixed with water to form a slurry, can be pumped through a pipeline. Coal from a mine in eastern Ohio was pipelined to Cleveland until railroad freight rates made this venture unprofitable. A plan to pump coal from West Virginia and Pennsylvania to the Atlantic Seaboard never materialized, because of legislative and right-of-way obstacles than technical difficulties.

<sup>1</sup> Despite improved methods, miners are still exposed to the hazards of roof falls, explosions of coal dust, and black-lung disease from coal-dust inhalation.

A 273-mile, 18-inch pipeline from an Arizona mine to a Nevada power plant is now under construction.

### PENNSYLVANIA'S CHESTNUT RIDGE

Instead of railroading bulky coal from the mine to a distant power plant, why not build the power plant atop the mine and send the kilowatts to market by wire? That is now being done, thanks to improvements in long-distance transmission. Most Philadelphia - Baltimore - Washington consumers get electricity from a trio of huge mine-mouth plants atop Chestnut Ridge, an immense coal-bearing mountain in western Pennsylvania. The three plants — near Johnstown, Conemaugh, Homer City, and Keystone — devour 1,700 tons of coal an hour around the clock. At Keystone one can see a pile of coal, over a million tons high, collected to assure uninterrupted service, and it is estimated that the underground mine has enough coal to feed the plant for 30 years. Four vase-shaped cooling towers, 325 feet high, curb any thermal polluting of the little steam that supplies the water. Towering above everything are two 800-foot high stacks that disperse into the upper atmosphere whatever combustion by-products that may escape the electrostatic precipitators.

A bit mine-mouth complex, such as Chestnut Ridge, affords savings in unit costs of power by reason of its large scale set-up. These savings and benefits accrue on a pro-rata basis to the suppliers of the capital, which was contributed by the member power companies of the Pennsylvania-New Jersey-Maryland Interconnection. (See "Pressures in the Powerhouse," *Business Review*, April 1971.)

### SUPPLIES AND DEMANDS

Improvements in mining and moving coal have kept the industry abreast of its competitors. But, coal is doing more than vie with other fuel industries; it is acquiring a new look. Blue-chip concerns are investing

in coal land and coal companies. Only two of the ten largest coal companies remain independently owned; oil companies, mineral concerns, and conglomerates own or control the others. Moreover, the top 20 producers of natural gas are oil concerns, some of which also have interests in nuclear energy. Still other oil companies have bought or leased large tracts of coal land. Permits for coal prospecting on Federally owned land and on Indian reservations are up sharply.

Coal has gotten hot for two reasons: The insatiable and anticipated demands of the electric utility, synthetic gaseous, and liquid fuels industries, plus coal's widespread abundance have enhanced the commodity's popularity.

**The Bounty and Its Whereabouts.** According to the latest estimate of the Geological Survey, known reserves recoverable under present conditions are 200 billion tons. That is over 250 times this year's production — a comforting statistic for the coal-burning electric utilities.

These widely distributed coal deposits are within 37 states, as the map shows. The northern Appalachian basin was the first to be developed because of its proximity to population and industrial centers. Pennsylvania, long the leading coal producer, has been superseded by both West Virginia and Kentucky. These three states, along with fourth-ranking Illinois, currently produce two-thirds of the industry's output.

From the standpoint of reserves, the richest region is the northern Rocky Mountain basin which embraces parts of Montana, Wyoming, Idaho, and the Dakotas. Most of the deposits in the Dakotas and some in Montana are lignite, the lowest-rank coal in energy per ton, but not to be despised. Substantial coal deposits are also found in the southern Rocky Mountain basin which includes parts of Colorado, Utah, Arizona, and New Mexico. The two Rocky Mountain basins are estimated to have the biggest chunk of the country's coal reserves.

**The Call of the West.** Over 75 per cent of the country's 45 billion tons of economically strippable coal lies in 13 states west of the Mississippi River. Many of these deposits have the added attraction of being unusually thick — one bed of coal in Wyoming, for example, is almost 90 feet thick. Western coal seams are said to be on average about 12 times thicker than those in the East.

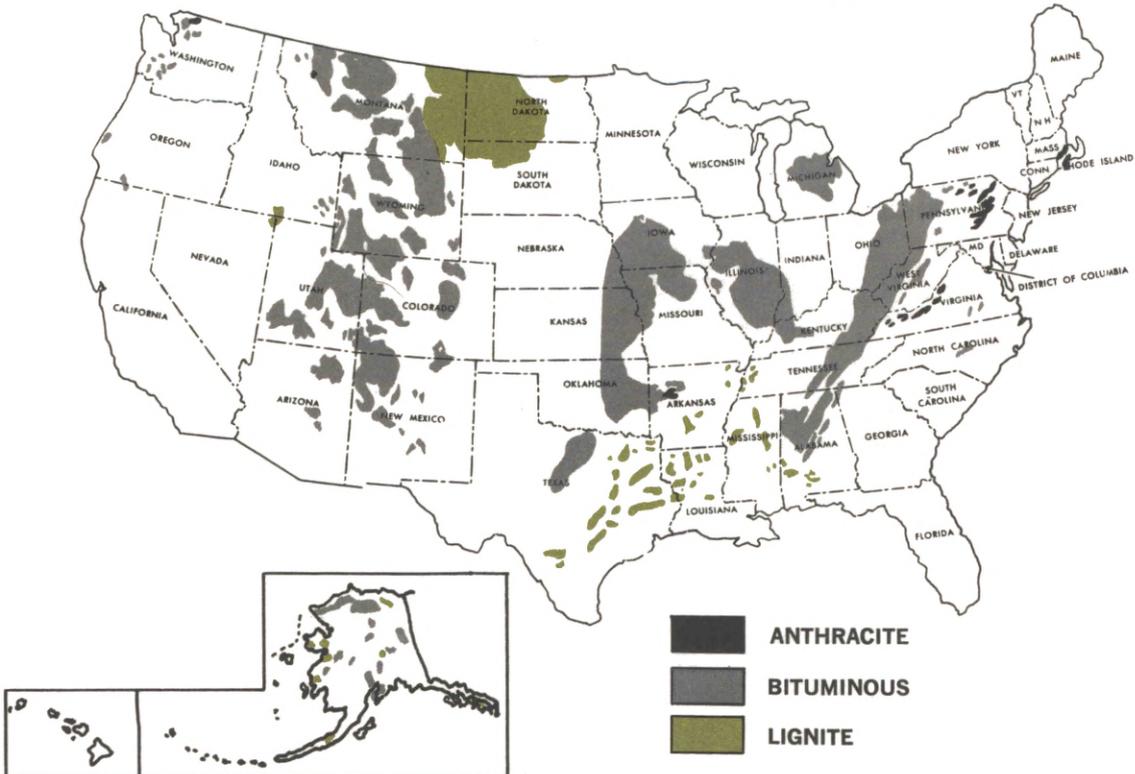
Yet another quality of western coal that enhances its value is its low sulfur content. With growing awareness of air pollution, states and municipalities are imposing stricter limits on the sulfur content of coal used by electric utilities. Standing at the head of the list in tonnage of low-sulfur

strippable coal and lignite are four western states — Wyoming, Montana, New Mexico, and North Dakota. Coal-burning electric utilities have been operating for a long time in the West, and new plants are going up in Texas, New Mexico, and Washington state. Moreover, western coal is coming east. Chicago utilities have brought low-sulfur coal from Montana and Wyoming, and are considering low-sulfur coal from Colorado, Utah, and New Mexico.

**Coal's Lifeline.** Instead of fading out, coal's lifeline may be growing stronger and longer at the expense of at least one major competitor — natural gas. Natural gas is clean, convenient, and calorific; it is widely used

COAL FIELDS OF THE UNITED STATES.

(FROM UNITED STATES GEOLOGICAL SURVEY)



for heating and cooking in homes and industries. The fuel's market has steadily expanded, supplying one-third of the country's total energy. It ranks next to petroleum, with which gas is often associated in its geological habitat.

The very success of natural gas, however, has resulted in such heavy drafts upon the underground storehouse that diminishing reserves are causing concern. At current rates of consumption, estimated reserves of natural gas will be exhausted in a few decades. Coal reserves, however, are plentiful for several centuries.

Anticipation of the impending scarcity and rising cost of natural gas has spurred research on gasification and liquification of coal. Pilot plants for coal gasification have been in operation for several years, and commercial production may not be far off. Utilization of strip-mined coal for gasification promises to open a large market for western coal. According to a press report, a large number of sites west of the Mississippi have already been chosen for construction of strip-mining and coal-processing plants.

When nuclear power plants entered the picture it was thought they would choke off coal's lifeline. Today, however, the 22 operable nuclear plants have less than 3 per cent of the electric utility industry's total generating capacity. Nuclear plants still face technical, economic, and environmental problems: they cost more to build than conventional plants; they generate more heat that creates problems of thermal pollution of waterways; they are not considered completely safe by the public. Moreover, it may be at least 1980 or later before the nuclear power plants under construction or on order will become operable; in the meantime, coal-burning plants will have to be constructed to accommodate the ever-increasing demand for electric power.

Presently, the country's energy is furnished by the big three: petroleum, natural gas, and coal, in that order of importance. Petroleum supplies most of the energy because of its hold on the transportation market. Gas is the cleanest and scarcest. But, even though outranked in present usage, coal is by far the richest in backlog and still has a lot of fight for the future. ■

## ANNUAL OPERATIONS AND EXECUTIVE CHANGES

### DIRECTORS AND OFFICERS

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At the election held in the fall of 1971, James H. Dawson, President and Chairman of the Board, Bank of Delaware, Wilmington, Delaware, was elected by member banks in Electoral Group 1 as a Class A Director for a three-year term beginning January 1, 1972. He succeeds Harold F. Still, Jr., President, Central Penn National Bank, Bala Cynwyd, Pennsylvania. C. Graham Berwind, Jr., President, Berwind Corporation, Philadelphia, Pennsylvania, was elected by member banks in Electoral Group 2 as a Class B Director to fill the unexpired portion of the term of Henry A. Thouron, former Chairman of the Board, Hercules Incorporated, Wilmington, Delaware, whose term expired December 31, 1971, and for a new term of three years beginning January 1, 1972. Mr. Thouron resigned on February 4, 1971.

The Board of Governors of the Federal Reserve System redesignated Bayard L. England, former Chairman of the Board, Atlantic City Electric Company, Atlantic City, New Jersey, as Chairman of the Board of Directors of this Bank and Federal Reserve Agent for the year 1972. John R. Coleman, President, Haverford College, Haverford, Pennsylvania, was appointed Deputy Chairman of the Board for the year 1972.

The Board of Directors selected G. Morris Dorrance, Jr., Chairman of the Board, President and Chief Executive Officer, The Philadelphia National Bank, Philadelphia, Pennsylvania, to serve again during 1972 as the member of the Federal Advisory Council from the Third Federal Reserve District.

The Board of Directors of this Bank, with the approval of the Board of Governors, reappointed David P. Eastburn as President and David C. Melnicoff as First Vice President, each for a statutory term of five years, beginning March 1, 1971. Subsequently, Mr. Melnicoff resigned to accept the post of Deputy Executive Director on the staff of the Board of Governors, effective October 12, 1971. The Board of Directors appointed Mark H. Willes, formerly Vice President and Director of Research, to complete the unexpired portion of the present term of office of First Vice President.

Henry J. Nelson, Assistant Vice President, retired from the Bank on March 31, 1971.

Effective April 1, 1971, several changes occurred in the official staff. Kenneth M. Snader was promoted to Vice President from Assistant Vice President and placed in charge of the newly organized Computer Services function. James H. Muntz was promoted from Department Head in the Department of Accounting to Accounting Officer. David H. Scott was promoted to Examining Officer, replacing the retiring Leonard E. Markford. J. David Stoner was added to the official staff as an Assistant Counsel.

On June 25, 1971, Warren J. Gustus resigned as Economic Advisor to the President to accept a position with an insurance company.

Effective August 16, 1971, Lawrence C. Murdoch, Jr., Vice President-Staff became Vice President and Secretary, assuming the duties of the Office of the Secretary formerly performed by William F. Staats who left the Bank to accept a teaching position at Louisiana State University.

Effective September 1, 1971, Miss Evelyn G. Battista was appointed Personnel Officer to replace David P. Noonan who retired August 31, 1971. Miss Battista was formerly Department Head of the Personnel Department.

Effective October 12, 1971, Edward G. Boehne was promoted to Vice President and Director of Research to replace Mark H. Willes who left the Department of Research to become First Vice President.

Effective January 1, 1972, W. Lee Hoskins and Ira P. Kaminow were appointed as Research Officers and Economists. Thomas K. Desch was promoted to Assistant Vice President, replacing James P. Giacobello who left to accept a position with a commercial bank. Donald J. McAneny was promoted to Chief Examining Officer, filling the vacancy caused by the promotion of Mr. Desch. Dominic L. Matteo was promoted to Check Processing Officer. Max Klass, Regulations Officer, resigned to accept a position with a commercial bank.

## DIRECTORS AS OF JANUARY 1, 1972

GROUP		Term expires December 31
	<b>CLASS A</b>	
2	WILLIAM R. COSBY Chairman of the Board, Princeton Bank and Trust Company Princeton, New Jersey	1972
3	RICHARD A. HERBSTER President, Lewistown Trust Company Lewistown, Pennsylvania	1973
1	JAMES H. DAWSON President and Chairman of the Board Bank of Delaware Wilmington, Delaware	1974
	<b>CLASS B</b>	
3	EDWARD J. DWYER Chairman of the Board and Chief Executive Officer ESB Incorporated Philadelphia, Pennsylvania	1972
1	PHILIP H. GLATFELTER, III Chairman of the Board and President P. H. Glatfelter Company Spring Grove, Pennsylvania	1973
2	C. GRAHAM BERWIND, JR. President and Chief Executive Officer Berwind Corporation Philadelphia, Pennsylvania	1974
	<b>CLASS C</b>	
	BAYARD L. ENGLAND Ventnor, New Jersey	1972
	JOHN R. COLEMAN President, Haverford College Haverford, Pennsylvania	1973
	EDWARD W. ROBINSON, JR. President and Chief Executive Officer Provident Home Industrial Mutual Life Insurance Company Philadelphia, Pennsylvania	1974

## OFFICERS AS OF JANUARY 1, 1972

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DAVID P. EASTBURN, President

MARK H. WILLES, First Vice President

JOSEPH R. CAMPBELL, Senior Vice President  
WILLIAM A. JAMES, Senior Vice President  
JAMES V. VERGARI, Senior Vice President and General Counsel  
EDWARD A. AFF, Vice President  
HUGH BARRIE, Vice President  
EDWARD G. BOEHNE, Vice President and Director of Research  
JOSEPH M. CASE, Vice President  
NORMAN G. DASH, Vice President  
RALPH E. HAAS, Vice President  
ALEXANDER A. KUDELICH, Vice President  
G. WILLIAM METZ, Vice President and General Auditor  
LAWRENCE C. MURDOCH, JR., Vice President and Secretary  
KENNETH M. SNADER, Vice President  
JAMES A. AGNEW, Assistant Vice President  
JACK P. BESSE, Assistant Vice President  
HUGH CHAIRNOFF, Assistant Vice President  
D. RUSSELL CONNOR, Assistant Vice President and Assistant Secretary  
THOMAS K. DESCH, Assistant Vice President  
RICHARD W. EPPS, Research Officer and Economist  
W. LEE HOSKINS, Research Officer and Economist  
JOSEPH R. JOYCE, Assistant Vice President  
IRA P. KAMINOW, Research Officer and Economist  
EUGENE W. LOWE, Assistant Vice President  
WARREN R. MOLL, Assistant Vice President  
RUSSELL P. SUDDERS, Assistant Vice President  
DONALD J. McANENY, Chief Examining Officer  
EVELYN G. BATTISTA, Personnel Officer  
SAMUEL J. CULBERT, JR., Bank Services Officer  
GEORGE C. HAAG, Public Services Officer  
HILARY H. HOLLOWAY, Assistant Counsel and Assistant Secretary  
JACK H. JAMES, Examining Officer  
A. LAMONT MAGEE, Assistant General Auditor  
DOMINIC L. MATTEO, Check Processing Officer  
JAMES H. MUNTZ, Accounting Officer  
STEPHEN M. ONDECK, Examining Officer  
DAVID H. SCOTT, Examining Officer  
J. DAVID STONER, Assistant Counsel

## STATEMENT OF CONDITION

### FEDERAL RESERVE BANK of PHILADELPHIA

(000's omitted in dollar figures)	End of year	
	1971	1970
<b>ASSETS</b>		
Gold certificate account .....	\$ 471,490	\$ 721,185
Special Drawing Rights Certificate .....	23,000	23,000
Federal Reserve notes of other Federal Reserve Banks ...	81,867	60,448
Other cash .....	10,321	9,761
Loans and securities:		
Discounts and advances .....	400	150
United States Government securities .....	3,849,646	3,261,250
Total loans and securities .....	<u>\$3,850,046</u>	<u>\$3,261,400</u>
Uncollected cash items .....	803,108	693,676
Bank premises .....	3,281	2,533
All other assets .....	39,739	42,670
Total assets .....	<u><u>\$5,282,852</u></u>	<u><u>\$4,814,673</u></u>
<b>LIABILITIES</b>		
Federal Reserve notes .....	\$3,237,391	\$2,933,550
Deposits:		
Member bank reserve accounts .....	1,164,006	1,163,059
United States Government .....	155,230	64,016
Foreign .....	14,280	6,375
Other deposits .....	22,030	16,474
Total deposits .....	<u>\$1,355,546</u>	<u>\$1,249,924</u>
Deferred availability cash items .....	581,435	529,336
All other liabilities .....	31,662	29,919
Total liabilities .....	<u>\$5,206,034</u>	<u>\$4,742,729</u>
<b>CAPITAL ACCOUNTS</b>		
Capital paid in .....	38,409	35,972
Surplus .....	38,409	35,972
Total liabilities and capital accounts .....	<u><u>\$5,282,852</u></u>	<u><u>\$4,814,673</u></u>
Ratio of gold certificate reserve to		
Federal Reserve note liability .....	14.6%	24.6%

## EARNINGS AND EXPENSES

### FEDERAL RESERVE BANK of PHILADELPHIA

(000's omitted)	1971	1970
<b>Earnings from:</b>		
United States Government securities .....	\$192,792	\$194,106
Other sources .....	754	4,064
Total current earnings .....	<u>\$193,546</u>	<u>\$198,170</u>
<b>Net expenses:</b>		
Operating expenses* .....	14,241	12,631
Cost of Federal Reserve currency .....	1,508	1,196
Assessment for expenses of Board of Governors .....	1,680	1,078
Total net expenses .....	<u>\$ 17,429</u>	<u>\$ 14,905</u>
Current net earnings .....	\$176,116	\$183,265
<b>Additions to current net earnings:</b>		
Profit on sales of U.S. Government securities (net) .....	5,218	424
All other .....	2	189
Total additions .....	<u>\$ 5,220</u>	<u>\$ 613</u>
<b>Deductions from current net earnings:</b>		
Miscellaneous non-operating expenses .....	420	14
Total deductions .....	<u>\$ 420</u>	<u>\$ 14</u>
Net additions .....	\$ 4,800	\$ 599
Net earnings before payments to U.S. Treasury .....	<u>\$180,916</u>	<u>\$183,864</u>
Dividends paid .....	\$ 2,238	\$ 2,082
Paid to U.S. Treasury (interest on Federal Reserve notes) ....	\$176,241	\$179,827
Transferred to or deducted from (-) Surplus .....	\$ 2,437	\$ 1,955

\* After deducting reimbursable or recoverable expenses

**VOLUME OF OPERATIONS**  
**FEDERAL RESERVE BANK of PHILADELPHIA**

Number of pieces (000's omitted)	1971	1970	1969
<b>Collections:</b>			
Ordinary checks*	412,949	386,878	363,658
Government checks (paper and card)	39,689	38,050	33,933
Postal money orders (card)	12,917	13,022	13,708
Non-cash items	993	876	899
Food stamps redeemed	73,807	51,492	29,581
Clearing operations in connection with direct sendings & wire & group clearing plans**	606	606	607
Transfers of funds	349	325	308
Currency counted	368,459	349,173	334,891
Coins counted	801,081	752,489	803,868
Discounts and advances to member banks	(a)	1	1
Depository receipts for withheld taxes	1,691	1,296	1,293
<b>Fiscal agency activities:</b>			
Marketable securities delivered or redeemed	355	557	569
Computerized marketable securities (Book entry transactions)	15	7	18
Savings bonds and notes (F.R. Bank and agents)			
Issues (including reissues)	11,511	10,932	10,187
Redemptions	7,557	9,098	9,229
Coupons redeemed (Government and agencies)	856	867	996

Dollar amounts (000,000's omitted)

<b>Collections:</b>			
Ordinary checks	\$126,693	\$120,156	\$116,717
Government checks (paper and card)	10,506	9,553	9,421
Postal money orders (card)	236	240	241
Non-cash items	2,243	1,775	1,464
Food stamps redeemed	124	76	42
Clearing operations in connection with direct sendings & wire & group clearing plans**	76,689	69,340	66,946
Transfers of funds	515,117	404,927	351,524
Currency counted	2,837	2,650	2,494
Coins counted	106	102	103
Discounts and advances to member banks	2,260	4,607	6,289
Depository receipts for withheld taxes	7,294	6,344	7,012
<b>Fiscal agency activities:</b>			
Marketable securities delivered or redeemed	11,297	11,155	11,603
Computerized marketable securities (Book entry transactions)	30,902	7,286	5,966
Savings bonds and notes (F.R. Bank and agents)			
Issues (including reissues)	586	491	428
Redemptions	360	497	530
Coupons redeemed (Government and agencies)	159	146	380

\* Checks handled in sealed packages counted as units

\*\* Debits and credit items

(a) Less than 1,000 rounded