1975 Annual Report

Federal Reserve Bank of Richmond

Sixty-first Annual Report 1975

Contents

To Our Member Banks:

We are pleased to present the 1975 Annual Report of the Federal Reserve Bank of Richmond. The Report's feature article deals with factors contributing to the persistence of inflation. The Report also includes highlights of the year, a summary of operations, comparative financial statements, and current lists of directors and officers of our Richmond, Baltimore, Charlotte, Columbia, and Culpeper offices.

On behalf of our directors and staff, we wish to thank you for the cooperation and support you have extended to us throughout the past year.

Sincerely yours,

E Angus Powell

Chairman of the Board

Robt P Black

President

The Persistence of Inflation

Among the most exasperating and puzzling of recent economic phenomena is the apparent intractability of the inflation rate. Once started, an inflation becomes difficult to subdue. It seems to develop a momentum of its own, independent of other basic economic conditions. It resists or at best responds only sluggishly to traditional restrictive policies. Its persistence in the face of high unemployment and excess capacity has resulted in the addition of the term **stagflation** to the economist's lexicon.

What accounts for the stickiness of the inflation rate? Why is it so policy-resistant and difficult to control? Why is it so slow to decelerate even when demand is slack? Many economists believe that the answers lie in the mechanism through which inflationary impulses are transmitted through the economy.[1] Embedded in this mechanism are certain delays or lags that may slow the spread of inflation over the total price structure and may also prolong its duration. Particular prices that lag behind general inflationary movements have to catch up later to reestablish their relative position in the price structure. This lag/catch-up characteristic of the inflationary transmission mechanism is offered by some as an explanation of why strong upward pressures on prices persist long after demand slackens.

The most important lags in the process through which inflation is diffused through the economy are the **price-adjustment lag** and the **expectations-formation lag.** The first refers to the delayed response of the rate of price increase to shifts in aggregate demand. Demand pressure is transmitted to prices via a complicated and circuitous channel that runs from output to inputs to input prices to costs and finally to product prices. The price-adjustment lag accounts for the time it takes for demand to affect prices through the channel of costs. It should be noted that many of these costs themselves adjust slowly, partly because they are influenced by sticky price anticipations. These sticky anticipations are described by the second lag, which refers to the slowness with which expectations of future inflation are revised when individuals realize that actual infla-

[1] See, for example, the studies by Cagan [1, 2, 3] and Laidler [5, 6]. See also the articles by Friedman [4] and Selden [8]. The present article draws heavily from Cagan and Laidler.

tion has turned out to be different than was expected. For example, immediately following periods of rapidly accelerating inflation, expectations about the future behavior of prices continue to reflect the preceding price experience even though the current rate of inflation may be decelerating. Some analysts point to these lags as the reason that inflation is so persistent and hard to subdue, even in the face of high unemployment and excess capacity.

The purpose of this article is to examine the price-adjustment and expectations-formation lags and to indicate how they may affect the speed, pattern, and duration of inflation. The article proceeds in the following manner. First, it identifies the location and describes the operation of the lags in the inflationary transmission mechanism. Second, it provides an explanation of the existence of the lags. Third, and most important, it analyzes the policy implications of the lags. Finally, the appendix contains a brief description of how the lags are treated in simple analytical models of the inflationary process.

Sketch of the Inflationary Process

The first objective is to describe the operation of the lags in the inflationary mechanism. As a necessary preliminary, a brief description of the inflation process is offered, with emphasis on the time sequence or chronological order in which key economic variables (spending, output, costs, prices, expectations, etc.) adjust to inflationary pressures. The hypothetical example presented below may not conform to all of the inflationary episodes experienced in the U. S. although it probably typifies most of them.

As a first approximation, the sequence of events in a typical inflation may be described as beginning with an increase in aggregate demand to a level in excess of the economy's capacity to produce. Such a step-up in the rate of spending might stem from any of a variety of causes including: (1) an increase in the government's budgetary deficits; (2) an episodic expansion in private spending associated, say, with a major innovation; and (3) an acceleration in the rate of monetary growth either actively engineered or passively permitted by the monetary authorities. Whatever the cause, the increased rate of spending, if it is to continue, must be supported by a sustained higher rate of monetary growth. Without this concomitant monetary growth, rising prices would simply reduce the real value of existing cash balances below the level that people desire to hold. In an effort to rebuild their price-eroded real balances, cashholders would cut expenditures, thereby bringing the inflation to a halt. An increased rate of spending cannot be maintained for long without the monetary expansion necessary to finance it. Assuming such expansion occurs, however, the corresponding increased rate of spending leads to a build-up of excess demands on the economy. Businessmen initially respond to this rising demand not by raising prices but rather by reducing inventories and expanding output. That is, their initial adjustments are to quantities; price adjustments come later—hence the so-called price-adjustment lag.

The stimulus to final output resulting from these quantity adjustments is transmitted back to earlier stages of production via increases in the demand for labor and material inputs, as well as for intermediate (semi-finished) products. Demand pressure passes downward to lower stages of production where prices—especially those of raw materials and other basic commodities—are particularly sensitive to increases in demand. These prices begin to rise almost immediately as do certain competitive (non-union) wages whose adjustment is not delayed by long-term union contracts or collective bargaining agreements. Since the output of earlier stages of the productive process constitutes the input of later stages, these rising wages and prices pass back up through the interindustry structure in the form of increased costs. In short, demand pressure is transmitted downward thus invoking cost increases that ripple upward until they finally reach the finished product stage. Here businessmen, operating with fixed percentage markups over costs, pass these cost increases on in the form of higher prices. These price increases induce workers operating under collective bargaining agreements to bargain for cost of living increases in the next wage contract. The resulting increases in labor costs are passed through into still higher prices. Such cost-induced price increases, of course,

constitute the delayed price response to the prior shift in demand. These cost and price increases provoke further rounds of wage and price increases that add impetus to the inflation through the channel of costs.

It should be noted that the expectations lag is in operation throughout the early and intermediate stages of the inflation. Price-anticipations are based on perceived trends and so do not change quickly. Because these trends are estimated largely from past experience, it takes time to adjust expectations to higher current rates of inflation. Thus when the actual rate of inflation begins to rise, the expected rate is not immediately affected. Only after the actual rate has exceeded the expected rate for a time will the latter start to rise. But it will rise slowly at first because it continues to reflect the lower past rates of inflation. Eventually, however, the expected rate rises faster and faster as people become acclimated to the higher actual rate and adapt their expectations to it. Once aroused, inflationary expectations feed back into the current rate of inflation as firms and unions seek to raise prices and wages at the same rate as they expect prices in general to rise. At this stage of the inflationary process, where cost increases are passing through into price increases and the expected rate of inflation is rising to catch up with the actual rate, the main impact of the inflationary stimulus shifts from quantities to prices. The temporary output and employment effects diminish, and purely inflationary price effects dominate. The lags, however, may be long; and the price system may take several years—years that may even encompass a business recession—to complete all adjustments. Particular costs and prices that have lagged behind the others will have to catch up in order to restore the equilibrium price relationships disturbed by the inflation. Also, at the end of a serious inflation, inflationary psychology may continue to exert upward pressure on wages and prices even after other basic pressures have begun to dissipate, since it takes time for expectations to catch up with the accelerating price movements of the recent past. This catch-up process may extend well into an ensuing recession, thus resulting in the anomaly of rising prices despite slackening demand.

In the process just described, the chain of causation or pattern of adjustment runs from spending to output to costs to prices to expectations and back again to input and product prices. This sequential process is represented schematically in the chart,which also shows the location of the price-adjustment and expectations lags. It should be emphasized, however, that an important constraint exists to the continuous operation of this process. Specifically, the process cannot continue unless it is constantly refueled with additional supplies of money. A determined stand by the monetary authorities to deny this fuel will eventually bring it to a halt.

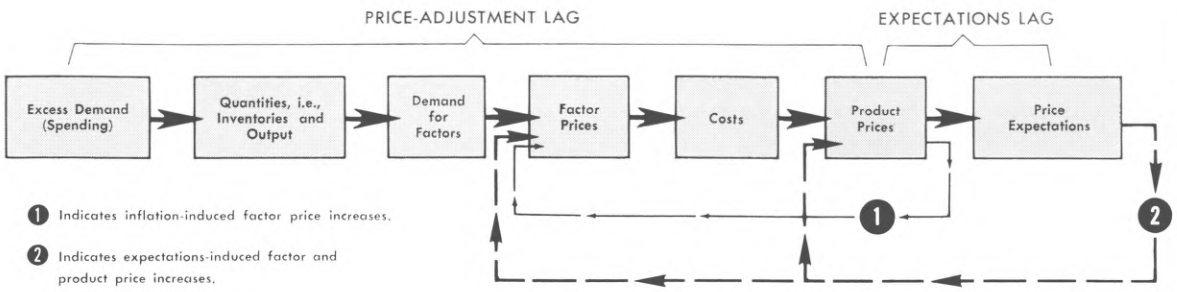
The Winding-Down Process

The lags described in the preceding section continue to operate even after an effective program of monetary restraint is implemented. Spending slackens, output falls, and input demands decline; but prices nevertheless continue upward because recent cost increases are still working their way through the system and because inflationary expectations continue to mount. But as demand pressures slacken throughout successive stages of production, the resulting weakening of costs eventually leads to an easing of prices of final goods and services. As the actual rate of price increase falls and remains for a time below the expected rate, expectations of further rises are gradually revised downward. Since the expected rate is a determinant of the actual rate, the decrease of the former will produce a further deceleration of the latter. But the price-adjustment and expectations lags draw out the winding-down process, and the actual rate of inflation will converge on its new equilibrium level only slowly.

Factors Retarding Price Adjustment

What characteristics of a modern economy account for the lags described in the foregoing sections? In the case of the price-adjustment lag, the answer is fairly straightforward. The lag arises from institutional arrangements and behavioral practices that operate to make many costs and prices relatively unresponsive to

THE INFLATIONARY TRANSMISSION MECHANISM



The inflation process is set in motion by a rise in aggregate demand or spending to a level in excess of the economy's long-run capacity to produce. Businessmen initially respond to the excess demand by drawing down inventories and stepping up production. Output expands and the demand for resource inputs increases. The resulting upward pressure on resource prices pushes up unit production costs upon which product prices are based. Prices therefore rise. These price increases induce resource owners to bargain for cost-of-living pay increases to restore real earnings eroded by inflation. This feedback of product prices into resource costs generates additional rounds of inflation. The price-adjustment lag is the time it takes for demand pressure to affect product prices through the complicated channel of factor costs. If the inflation persists, it eventually induces upward revisions of expected future rates of inflation, which feed back into wages and prices to add further momentum to inflation. Slow to build up and hard to reverse, price expectations may keep wages and prices increasing long after demand slackens. The expectations lag accounts for the slow adjustment of the expected future rate of inflation to changes in the actual current rate.

short-run shifts in demand.[2] For example, long-term contracts fix some wages and prices for substantial intervals of time. In addition, regulated rates of public utilities can be changed only after lengthy administrative and judicial proceedings. Moreover, there exist a variety of legal restrictions on wage and price flexibility, including minimum wage laws, rent controls, oil price ceilings, interest-rate ceilings, and the like. There are also numerous government-sanctioned trade-restriction and price-fixing arrangements, such as production and marketing quotas for certain agricultural products, import quotas, licensing and other restrictions to entry of professions, and resale price maintenance agreements. All these contribute to the stickiness of the prices affected.

An important factor retarding price adjustment is the inflexibility of many wages. Owing to long-term labor contracts, delays in the adjustment of price expectations, and perhaps also workers' money illusion (i.e., failure to distinguish between nominal and real wage increases), some wages tend to lag behind inflation during certain phases of the business cycle. When inflation accelerates in the upswing, these wages are often slow to respond. In later stages of a sharp inflation, however, wage increases may outstrip price increases. Wages may then tend to rise ahead of prices to restore real earnings eroded by past price increases and to protect real earnings from anticipated future price increases. But the lag becomes noticeable again when inflation is subsiding as the rate of wage increase shows little tendency to decelerate even though the rate of rise of other prices is diminishing.

Another important factor contributing to price rigidity is the price-setting behavior of large-scale firms operating in manufacturing industries. In the typical imperfectly competitive market, the price mechanism works in the long run as prices adjust to clear the market. In the short run, however, prices are relatively inflexible. Firms do not typically alter their prices in response to short-run shifts in demand. At least three explanations of this behavior have been offered.

According to the first, firms have difficulty distinguishing between real demand shifts specific to a particular industry and shifts in nominal aggregate demand for the output of all industries. Because they alter only the composition and not the overall level of aggregate demand, specific demand shifts may occur without inducing a corresponding rise in input

[2] Note that the rigidities or inflexibilities described in this section refer not to *levels* of particular prices and costs but rather to *rates of change* of those variables. The concept of rigid price levels, of course, implies the complete absence of price change and is thus irrelevant to the analysis of inflation, which deals with continually rising, not constant, prices. The problem of sluggish inflation is not the downward inflexibility of price levels but rather the resistance of rates of price increase to departures from the established trend.

prices. By contrast, an economy-wide demand increase leads to an equiproportional bidding-up of input prices. In the former case, industry cost and supply curves remain unchanged. In the latter case, however, cost and supply curves shift sharply upward, just matching the rise in demand. The rational entrepreneurial reaction to the former is a change in some quantity whereas the rational reaction to the latter is a change in prices. But when aggregate demand alters there is a good likelihood that each producer will tend to regard the shift in demand for his product as special to him and so adjust quantity rather than price. Only later, when cost changes become widespread, will producers correctly perceive the demand shift as an economy-wide phenomenon. Then and only then will they start to change their prices. A second explanation stresses the administrative inconvenience and costs of frequent price changes—for example, the expense of printing and disseminating new price lists—as a reason for sticky oligopolistic prices.

Still a third explanation of price inflexibility in imperfectly competitive markets begins with the observation that in the complex and dynamic modern industrial economy there is always much uncertainty about the equilibrium or market-clearing price. Firms operating in this kind of environment try to avoid the market disruption, confusion, and perhaps even overt price warfare that could result if each sought individually to determine the equilibrium price. In order to prevent such confusion from developing, firms seek ways to coordinate price changes. Such coordination, if successful, will assure that firms raise prices in unison and that price changes will not occur when demand shifts are thought to be temporary and reversible. Firms have devised several techniques to facilitate price coordination. Infrequent price changes are perhaps the simplest of these. Price leadership constitutes another such technique. In this case, one firm —often the largest in the industry—initiates price changes, and the rest more or less automatically follow that price change. Perhaps the most widely used mechanism for coordinating price behavior, however, is to base selling prices on unit labor and material costs that are the same for all firms in the industry. This practice is accomplished by the use of so-called unit cost or mark-up pricing formulas.

Unit-cost pricing is thought to be characteristic of many of the large oligopolistic firms that operate in American industry. The mark-up technique of pricing involves setting prices on the basis of a constant percentage markup applied to production costs per unit of output at some standard level of plant operation or capacity utilization. The chief cost components are unit labor and unit materials costs. Included in the markup is the firm's profit margin per unit of output. This profit margin is usually set to provide a fixed target rate of return on equity. Since percentage markups or profit margins are treated as fixed constants in unit-cost pricing formulas, it follows that formula-based price changes are strictly cost-determined, that is, they result solely from changes in unit labor and material costs. Prices respond to costs, not to demand. Moreover, since standard unit labor and material costs are roughly the same for all firms in the industry, unit-cost formulas insure that price changes will be uniform throughout the industry, thereby minimizing the risks of competitive price undercutting. Thus unit-cost pricing is consistent with the slow response of prices to shifts in demand, the dependence of prices on costs, and the coordination of prices in concentrated industries.

A Source of Confusion

The long delay in the adjustment of many prices to demand pressure makes it difficult to distinguish cause from effect in the inflationary sequence and contributes to confusion in popular understanding of the source of inflation. The sequence of cost-price response observed in concentrated industries, for example, may suggest that inflation is initiated by autonomous increases in costs. The use in such industries of mark-up or unit-cost pricing formulas, and the resulting dependence of prices on costs, means that firms do not raise prices unless there occurs a prior increase in costs. This cost-price sequence, with costs rising first and prices later, makes it appear that inflation is caused by rising costs when in fact excess demand is usually the culprit. For, as pointed out earlier, both the cost increase and the

ability of firms to pass on this increase are due to a prior expansion in aggregate demand for final goods and services.

Similarly, the long lag in the response of oligopolistic prices to prior inflationary pressures may make it appear that large firms in concentrated industries play an important independent role in generating inflation. Due to the price-adjustment lag, catch-up price increases in such industries are often delayed until well after restrictive policies start to turn the inflation process around. The apparent perverse behavior of prices when markets are slack and unemployment is rising fosters the notion of giant firms arbitrarily exercising monopoly power by effecting autonomous increases in prices totally independent of economic conditions.[3] But it should be noted that the price increases in such situations can be interpreted as constituting a delayed reaction to prior economic conditions of expanding demand and demand-induced cost increases and a near perfect example of the price-adjustment lag. They might well be interpreted as a delayed manifestation of the effects of a general inflation rather than of inflation-initiating price behavior.

From this interpretation it follows that big firms are not inflation starters. Nevertheless they may play an important role in the working out of the inflationary process. Specifically, they may be inflation prolongers. It follows logically from the mere existence of the price-adjustment lag that administered prices do not usually initiate inflation. Instead they tend to slow it down. By doing so, however, they extend the duration of inflation and protract the period necessary for its reversal. Administered prices are a problem because they act to prolong inflation once it gets started and because they delay the success and exacerbate the adverse side effects of anti-inflationary stabilization policy. Just as in an upward price spiral sticky administered prices retard the spread of inflation, so when the spiral is unwinding they delay its deceleration and impede the return to price stability.

[3] This simplistic cost-push view is implausible and at odds with the orthodox theory of monopoly behavior. According to the latter view, a monopolist sets a relative price for his product that maximizes profits in real terms and maintains that real price by adjusting his nominal price to allow for inflation. The logical implication is that given the degree of monopoly power monopolists would have no incentive to raise prices other than to keep pace or catch up with inflation. With real prices already established at profit-maximizing levels, any further upward adjustment would reduce profits. On the other hand, if prices are being raised to exploit hitherto unexploited monopoly potential, the question arises as to why those gains were foregone in the past. In either case, rising real prices imply nonrational behavior. It is true that rising real prices would be consistent with profit-maximizing behavior if the degree of monopoly power were increasing. But there is little empirical evidence that monopoly power is on the rise.

The Expectations-Formation Lag

As noted earlier, the complicating effects of the so-called price-adjustment lag are reinforced by a comparable lag in price expectations, which tend to adjust slowly to the actual rate of inflation. Why does this expectations lag occur and what determines its length?

The expectations lag occurs because people have imperfect foresight and cannot predict the future with certainty. If the future were known with absolute certainty, there would be no forecasting errors and no expectations lag. Anticipations would adapt themselves instantaneously to realized outcomes, and the expected rate of inflation would always be the one that actually occurred. Although the future is emphatically uncertain, people nevertheless try to make informed guesses about it, often on the basis of analyses of the past. Thus one longstanding explanation of the lag holds that price predictions are based on perceived trends as estimated from past price experience perhaps modified by current information.

Because they reflect the past, these trends and the predictions derived from them change slowly over time. Transitory deviations from the trend have little impact on expectations. Thus if the current rate of inflation departs from the recent trend, the expected rate will remain unchanged for a time. It requires the cumulative influence of a sustained change, or at least a very large change, in the actual rate to produce a change in the expected rate. And even then the adjustment will not be instantaneous or complete. The expected rate will continue to lag behind the current rate. As time passes, however, and the new rate persists, it will eventually begin to dominate the trend. The price experience of the more distant past gradually will be forgotten and the expected rate will finally converge on the actual rate.

The length of time required for this convergence cannot be specified with any degree

of precision. It depends on what interval or intervals of the past people consider in formulating their expectations and, in particular, on what relative weight they assign to the price experience of the more distant past. In general, the greater the weight assigned to the distant past, the longer will be the lag. The lag may indeed be quite long because people, in formulating their expectations, may look not merely at a chronological succession of prior years but rather at the relevant phases of a succession of past inflation-recession cycles and at the public policy response to these episodes. Looking back at a succession of what might be regarded as stop-go policies, for example, people may expect the recession phase to be brief and to be followed immediately by an expansionary phase that experience suggests may bring new inflationary pressures. To use a popular expression, they may "look across the valley."

A second factor that may affect the length of the expectations lag is the **variability** of the rate of inflation about the trend. The greater the variability of the actual rate of inflation the greater is the financial incentive to forecast it more accurately, i.e., to predict the variations, not just the trend. Accordingly, forecasts of the inflation rate will be revised more frequently and will rely more heavily on current and recent information. The whole time frame employed in observing past price behavior and past forecasting errors will contract and shift toward the present. Correspondingly, the expectations lag will be shorter.

Time Lags and Demand Management Policies

This article has focused on the role of time lags in the inflationary transmission mechanism. These lags raise several potential problems for demand management, i.e., monetary and fiscal, policy. First, if the lags are variable and hard to predict, policymakers may experience difficulty in accurately forecasting when their policy actions will take effect on the rate of inflation. In this case discretionary policymaking becomes a potentially risky undertaking. That is, unpredictability of the lag effects of policy may render the latter destabilizing rather than stabilizing. For this reason, some analysts have advocated the abandonment of discretionary policy in favor of fixed policy rules. Other observers, however, argue that the lags are not so variable and unpredictable as to defeat effective policy forecasting and control. Actually, little is known about the variability of the lags. The evidence is simply not sufficient to settle the issues. Whether rules would be superior to discretion in the conduct of stabilization policy remains an open question.

Additional policy problems arise from the **length** rather than the variability and unpredictability of the lags. As previously mentioned, the price-adjustment and expectations lags extend the time it takes for a policy-induced change in spending to work its way through to the rate of inflation. Moreover, they influence the pattern of response of quantities and prices to inflationary stimuli. Specifically, they cause the quantity response to precede the price response. When spending changes, output and employment adjust first, prices only later. What are the policy implications of such consequences?

First, owing to the slow response of inflation to a spending change, anti-inflationary monetary-fiscal policy can be expected to produce observed results only after a corresponding lag. Quick monetary remedies for inflation are not likely to be found. Moreover, since the initial impact of a change in spending is on output and employment rather than on prices, a move to monetary restraint would almost surely entail a recession or at least a marked retardation in the rate of expansion of the economy. In short, a temporary but protracted period of unemployment, idle capacity, and sluggish growth might have to be endured if restrictive policy were to be successful in permanently lowering the rate of inflation.

Second, due to the difference in timing of the response of output and prices to a spending change, anti-inflationary policy may appear impotent or even perverse. Because inflationary movements tend to subside so slowly, prices may continue to rise long after output and employment have turned down. Thus inflation can persist even in slack markets, a condition variously known as inflationary recession, stagflation, or slumpflation. During such periods, monetary restraint may be

wrongly blamed for causing both the slump and the accompanying inflation. At such times, monetary authorities, anxious to achieve quick and relatively painless results, may be tempted to abandon the policy of restraint as ineffective at best and harmful at worst.

Third, the same asymmetrical pattern of response—output first, prices only much later—may create the dangerous illusion that expansive policy in the upswing can achieve permanent gains in output and employment at the cost of little additional inflation. If inflation proceeds as described in the foregoing sections, this view may have unfortunate consequences. For it is virtually impossible to peg output and employment above their natural or equilibrium levels without continuously accelerating the rate of inflation. In any case, time lags may well compound the problem of curbing inflation by leading to the undue prolongation of expansive policy, thus increasing the momentum behind inflation when it finally occurs.

To summarize, given society's commitment to full employment, the existence of time lags in the inflationary mechanism may be sufficient to bias monetary-fiscal policy toward inflation over the entire policy cycle. The lags cause output and employment to adjust before prices. Consequently, the desired output results of stimulative policy will occur before the unpleasant inflationary results. In the case of restrictive policy, however, the undesirable unemployment effects will precede the desired price stabilization. Given the full-employment commitment, the existence of an incentive to emphasize stimulative policy and to soft-pedal contractionary policy is understandable.

Direct Controls

If orthodox demand-management policies cannot curb inflation without causing painful rises in unemployment, then what other means can be utilized? One suggestion is to reimpose direct wage-price controls. Several arguments have been advanced on behalf of controls. The most naive is that controls can constrain the rate of inflation while the authorities pursue demand-expansion policies necessary to insure full employment. This argument assumes that the rate of inflation can be permanently pegged in the face of persistent excess demand. In fact, however, the rate of inflation tends to gravitate to an equilibrium level where excess demand is zero. Controls can delay the adjustment to that level but they cannot stop it. The equilibrium rate of inflation will inevitably be reached either via evasion, i.e., through black markets, or after the controls are lifted. In the final analysis, controls will have no effect on the equilibrium rate of inflation, which is determined by aggregate demand. It logically follows, therefore, that a decrease in aggregate demand, not the application of controls, is the **sine qua non** for the reduction of the inflation rate.

Controls and the Expectations Lag

A more sophisticated argument for controls calls for using them as a supplement to monetary and fiscal policy. The prescription here calls for first employing a monetary-fiscal policy sufficient to eliminate excess aggregate demand and then using controls to speed the actual rate of inflation to its new equilibrium level. In this view, a controls program properly coordinated with restrictive demand policy could help short-circuit the painful process of winding-down a stubborn inflation.

The foregoing argument rests on the belief that controls can exert an independent influence on otherwise sticky price expectations. Eradication of inflationary expectations is of course a prerequisite to the elimination of inflation, since the former is a determinant of the latter. The problem is how to dampen expectations. The orthodox method is to create slack (excess supply) in the economy, thus causing the actual rate of inflation to fall below the expected rate, inducing a downward revision of the latter. Owing to the expectations lag, however, this adjustment may be a slow process and a prime example of how sluggish price anticipations can impede the return to price stability. Direct controls are viewed as a means of speeding the expectations adjustment and thus reducing the duration and severity of the economic slowdown necessary to bring inflation to its equilibrium level determined by aggregate demand.

How could controls influence expectations? Two mechanisms have been suggested. First,

the mere announcement of controls might alter expectations in the desired direction. Second, by freezing prices or at least severely constraining their rate of rise, controls would cause the gap between the expected and actual rates of inflation to be greater than it would otherwise be. Assuming that the rate at which expectations are revised varies directly with the size of the gap, controls would thus accelerate the downward revision of expectations.

This view, however, probably overestimates the influence of controls. To have anything more than a temporary impact on price expectations, the controls must convince the public that the trend of prices when controls are in force is a reliable indicator of the likely future trend of prices after they are lifted. The public may be hard to convince, especially if the controls have failed to stop inflation in the past. Aside from this point, it is hard to understand why controls should have a stronger impact on expectations than, say, an announced policy of a permanent reduction in the growth rate of the money stock. What counts is not the means by which the government announces its determination to permanently reduce inflation but that those intentions be believed.

Controls and the Price-Adjustment Lag

It should be noted, moreover, that even if controls **could** reduce the expectations lag, they would tend to lengthen the price-adjustment lag, and this would impede the return to equilibrium. The attainment of economic equilibrium requires that two conditions be satisfied. First, inflation must be correctly anticipated, i.e., the expected rate of inflation must equal the actual rate. Second, the equilibrium structure of relative prices must be restored. Lagging prices and costs must be allowed to catch up to and reestablish their equilibrium relationships with other prices that have already adjusted to inflation. Controls interrupt this catch-up process by arbitrarily freezing all prices and costs. As a result, catch-up adjustments are postponed until the controls are lifted and account for the observed tendency for prices to rise sharply when controls are terminated. Note that this problem would not arise if controls could distinguish between legitimate catch-up and unwarranted anticipatory price increases. In practice, however, the two are virtually indistinguishable, and controls prohibit both. By forcing the postponement of catch-up price increases, controls probably protract the inflationary process and lengthen the interval required for the rate of inflation to reach its equilibrium level. In the interim, the controls-distorted price structure generates inefficiency, resource misallocation, and income redistribution. Clearly, in the context of the explanation presented here, controls offer no solution to the problem of sticky inflation.

Other Proposed Solutions

One of the more promising, and yet untried, solutions to the lag problem is indexation, i.e., the inclusion of purchasing power clauses in all contracts. With all contractual prices tied to automatic cost of living escalators, inflation would be transmitted more quickly and evenly throughout all markets, thereby permitting faster restoration of relative price equilibrium. On the downside, indexation could help reduce expectations more quickly, thus shortening the time required to remove inflation. Critics argue that indexation would intensify inflation. This criticism confuses the **level** of inflation with the **speed** with which inflationary impulses are propagated through the economy. There is no reason to believe that escalator clauses by themselves would have any effect on the rate of inflation. The speed of inflation would be increased, to be sure, but the level of inflation would not necessarily be any higher. Another partial solution to the lag problem would be to shorten the length of contracts. For example, trade-union collective bargaining agreements could be renegotiated more frequently as could long-term contracts for raw materials and energy supplies.

A distinction should be made here between reforms designed to increase the speed of response of inflation to changes in aggregate demand and reforms aimed at reducing the equilibrium rate of unemployment, i.e., the unemployment rate that, given the inevitable frictions, rigidities and imperfections in the economy, is just consistent with zero excess demand and stable (nonaccelerating, nondecel-

erating) rates of inflation. Indexation falls in the former category while so called structural reforms fall in the latter. Structural reforms refer to microeconomic policies directed at improving the efficiency of labor and product markets. True, these policies may increase the responsiveness of inflation by eradicating market imperfections that inhibit price flexibility. But their chief purpose is to reduce the equilibrium rate of unemployment at which the demand for and supply of labor are in balance and at which any stable rate of inflation (including a zero rate) is possible. By so doing, structural policies may make it easier in at least two ways to bring inflation under control. First, they may render the equilibrium rate of unemployment and the corresponding zero or other desired steady rate of inflation a more acceptable policy option. By bringing equilibrium unemployment down to a socially tolerable level, structural policies reduce the risk that political pressure will be put on the authorities to peg unemployment at even lower levels that can only be maintained by a constantly accelerating rate of inflation. Second, they reduce the severity of the recession necessary to achieve price stability. Since a dampening of inflation requires a temporary rise in unemployment above its equilibrium level, it follows that any policy that reduces the latter also reduces the transitional level of unemployment.

The policy implications stemming from the preceding analysis are straightforward. Rely on demand management policies to bring inflation down to the desired steady-state level. Eschew controls. Recognize that a slowdown in inflation necessitates a temporary rise in unemployment above its equilibrium level with the amount of the rise depending on the speed with which inflation is to be removed. Choose the desired path to price stability always realizing that the faster the path the higher must be the level of unemployment in the interim. Acknowledge also that the extent and duration of the slowdown depends on the speed with which inflation responds to excess supply and expectations of future price changes are adapted to inflationary experience. Use indexation, if possible, to increase this speed of response. Once inflation is removed, maintain price stability by avoiding expansionary policies that generate excess demand. If society is unwilling to tolerate the equilibrium unemployment rate associated with price stability, design structural reforms to lower the equilibrium rate. If society is still unwilling to accept that rate, price stability is impossible.

APPENDIX:

The Treatment of Lags in Simple Analytical Models of the Inflationary Transmission Mechanism

The inflationary mechanism and its constituent lags can be summarized in the form of simple analytical models.[1] Economists have long used such models to study how lags affect the speed and duration of inflation. More recently, such models have been employed to estimate the impact of lags on the effectiveness of anti-inflationary policy. These models specify the chief determinants of the current and expected future rates of inflation. They also specify the lags linking the variables and determining the pattern of their interaction over time. Comprising these models are a **price-adjustment equation** and an **expectations-formation equation.**[2] The price-adjustment equation explains how the current rate of inflation responds to inflationary expectations and to lagged excess demand—the lag on the latter variable representing the price-adjustment delay. The expectations-formation equation explains how price anticipations are generated and revised in the light of past price experience. As shown below, the latter equation expresses the lag between the expected and actual rates of inflation as an exponentially-declining weighted average of past rates of inflation.

[1] For a thorough review of inflation models see the article by Laidler and Parkin [7] especially pp. 774-81 that describe models similar to the one presented in this appendix.

[2] Some models of the inflationary process contain a third equation that explains how inflation-generating excess aggregate demand is determined.

A crude version of this two-equation model is presented in the following paragraphs.[3] It should be strongly emphasized, however, that the model constitutes a severe over-simplification of a complex process and thus should be interpreted with some skepticism. Presented solely as an illustration, the model purposely omits many of the variables and behavioral relationships that a more complex, sophisticated, and realistic model would contain.

The Price-Adjustment Equation

Most models of the inflationary mechanism contain an equation that explains how the current rate of inflation is determined, i.e., the rate at which businessmen mark up their prices. One such equation shows the rate of price inflation p varying directly with lagged excess demand x_{-1} and with the expected rate of price increase p^e. The equation is written as follows:

$$(1) \quad p = ax_{-1} + p^e_{-1}$$

where p is the current rate of inflation (expressed as a percentage rate), x_{-1} is excess demand lagged one period, p^e_{-1} is the present period's expected rate of inflation forecast at the end of the preceding period, and a is a coefficient specifying how much each unit of lagged excess demand contributes to the rate of price increase. The excess demand variable x is measured in terms of real output since businessmen initially respond to changes in demand by altering quantity produced. More specifically, excess demand x is represented by the difference between actual and capacity real output. Actual output can exceed capacity output because the latter is defined not as the absolute physical limit or maximum ceiling level of output but rather as the output associated with the economy's normal or standard level of operation.

Equation (1) states that if aggregate demand and supply are equal so that there exists no excess demand (x = zero), then actual price inflation p will just equal expected inflation p^e_{-1}, i.e., businessmen will be raising their prices at the rate at which they expect other businessmen to be raising theirs. If, however, an expansion in demand raises x above zero, businessmen will eventually react to the excess demand by raising prices at a rate in excess of the expected rate of inflation. This price response, however, is not instantaneous. For a while, quantities rather than prices tend to absorb the impact of excess demand as businessmen temporarily expand output and perhaps allow their inventories to be depleted. These quantity changes affect demands for and prices of factor resources and ultimately invoke cost increases that signal the desirability of raising the rate at which prices are marked up. Later, therefore, businessmen respond to the excess demand by raising prices. The same price-adjustment lag operates on the downside. Thus if a subsequent slackening of spending causes excess demand x to become negative (i.e., a situation of excess supply) the actual rate of price increase p will eventually fall below the expected rate p^e_{-1}. The key word here is **eventually** because the lag prevents prices from responding immediately to shifts in demand.

The Price-Response Lag

The one-period delay on the excess demand variable symbolizes the tendency for price adjustments to lag behind shifts in demand.[4] This price-adjustment lag is meant to account for the time it takes for demand pressure to work backward through the interindustry structure and for costs to work forward. To summarize, the association of the price-adjustment lag with the excess demand variable x implies that the impact of a shift in demand is initially registered on x. That impact is not immediately transmitted to prices, however. Instead it is transmitted first to quantities and subsequently to costs. Prices do not respond until rising costs induce them to do so.

The Expectations-Formation Equation

The second equation of the model is the expectations-formation equation. It is written as follows:

$$(2) \quad p^e = bp + (1-b)p^e_{-1}$$

or, alternatively, as

$$(2a) \quad p^e - p^e_{-1} = b(p - p^e_{-1}).$$

Equation (2a) states that the change in the expected rate of inflation $p^e - p^e_{-1}$ is proportional to the amount by which the period's actual inflation p deviated from expected inflation as forecast at the end of the preceding period p^e_{-1} with the factor of proportionality b having a value between zero and unity.

Embodied in the equation is a particular theory—the so-called adaptive-expectations or error-learning hypothesis—of how inflationary expectations are formed. According to the error-learning hypothesis, people formulate expectations about the inflation rate, observe the discrepancy between the actual and anticipated rates, and then revise the anticipated rate by some fraction of the error between the actual and anticipated rates. Expectations are revised in proportion to the error associated with the previous level of expectations.

It can also be shown that the adaptive-expectations hypothesis is equivalent to the theory that people formulate price expectations from prior price experience by looking at a geometrically-weighted average of past rates of inflation with the weights diminishing exponentially as time recedes. This alternative interpretation of the adaptive-expectations hypothesis is written as follows:

$$(2b) \quad p^e = b \sum_{i=0}^{\infty} (1-b)^i \, p_{-i}.$$

Here Σ is the **summation operator** indicating the mathematical operation of adding a succession or series of terms, in this case the weighted past rates of inflation. The **summation index** i represents each past time period starting with the most recent (i=0) and extending backward to the most distant (i=∞). The variables p_{-i} are the past rates of inflation, one for each of the i periods stretch-

[3] The model presented here is adapted from similar models developed by Phillip Cagan and David Laidler. See Cagan [2; pp. 94-6] and Laidler [5, 6]. For an elementary description of Laidler's model, together with a diagrammatic illustration of its dynamic properties, see Laidler and Parkin [7; pp. 776-8].

[4] More sophisticated models would express the delayed price adjustment as a distributed lag, i.e., a lag spread over a number of time periods.

ing backward into time. Attached to each past rate of inflation p_{-i} is a corresponding **weight** that measures the degree of influence that each p_{-i} has on the formation of price expectations p^e. The weights are expressed as $(1-b)^i$, one for each of the i time periods. Since, as mentioned previously, the coefficient of expectations b is a fraction whose magnitude lies between zero and one, it follows that the term $(1-b)$ will also be a fraction. And since any given fraction raised to progressively higher integral powers yields successively smaller numbers, it follows that the weights $(1-b)^i$ must decrease as the exponent i increases, i.e., the weights must diminish the further back in time one looks.

Graphically, the weights are distributed along an exponentially declining curve whose slope reflects the speed of adjustment of expectations. A steep slope represents a short weighting scheme, implying swift adjustment, and conversely for a relatively flat slope. The slope itself is determined by the magnitude of the fraction $(1-b)$. A value of $(1-b)$ close to zero implies that the weights decline rapidly as time recedes, and future price expectations depend primarily on recent experience. On the other hand, if $(1-b)$ is closer to 1 in value, rates of inflation from the more distant past enter the equation with higher weights, and recent price information is discounted more heavily. Econometricians who have attempted to fit equation (2b) to the statistical data have found the fraction $(1-b)$ to be both significantly greater than zero and less than 1. These findings imply that while people generally assign higher weights to more recent phenomena these weights do not dominate the cumulative weight of all past price experience. In short, price anticipations continue to reflect past price experience, which explains why the expected future rate of inflation does not adjust instantaneously to the current rate.

To summarize, equation (2b) states that the expected future rate of change of prices is based on a geometrically declining weighted average of past rates of change of prices. The equation therefore constitutes a precise specification of the commonsense notion that expectations are based on past experience with more emphasis given to recent rather than distant experience.

The Expectations Lag

The preceding discussion clearly implies that the length of the expectations lag can be defined in terms of the coefficient of expectations b. The coefficient b itself measures the speed of adjustment of expectations to experience, i.e., the quickness of response of p^e to realized actual rates of inflation p.

The average length of the expectations lag is the counterpart of the speed of adjustment. This lag is expressed as $(1-b)/b$. The closer b is to 1, the shorter the lag. In the extreme case where b equals 1, the lag is nonexistent; and the expected rate of inflation adjusts instantaneously to the current rate. Thus when b is set equal to 1 in the expectations-formation equation

$$(2) \quad p^e = bp + (1-b)p^e_{-1},$$

the equation collapses to $p^e = p$, i.e., anticipated and actual inflation are always identical.

On the other hand, the lag will be longer the closer b is to zero. In the extreme case where b equals zero, the lag is infinitely long, i.e., the expected rate of inflation never changes. This result can be demonstrated by setting b at zero in equation (2), which yields $p^e = p^e_{-1}$, showing that the expected rate of inflation always remains unaltered from the preceding period. In short, if b is zero, the lag is of infinite length; and expectations never change regardless of what is happening to the actual rate of inflation.

One possible shortcoming of the adaptive-expectations or error-learning model is that it regards the speed of adjustment or coefficient of expectations b as a fixed constant. And since b determines both the length of the expectations lag and the slope of the weighting pattern used to distribute the lag, it follows that the model, by implication, also treats these phenomena as given constants. This treatment is surely too restrictive. Some analysts think, contrary to the model, that the coefficient b is capable of being influenced by outside information and by the behavior of the rate of inflation itself. For example, it has been suggested that the sensitivity of price anticipations is greater and the corresponding adjustment lag shorter for high and volatile rates of inflation than for low and steady rates. Finally, some observers believe that the expectations coefficient can be influenced by government policy. In fact, this idea constitutes one rationale for direct wage and price controls.[5]

The Complete System

Taken together, the price-adjustment and expectations-formation equations summarize the operation of the inflationary transmission mechanism. These two equations explain the mutual determination of actual and expected rates of price increase. They also indicate the iterative interaction process whereby the expected inflation rate influences the actual current rate, which in turn becomes a determinant of next period's expected rate, which feeds back into next period's actual rate, etc. Moreover, the model demonstrates how inflationary expectations operate to lengthen the lagged adjustment of prices to short-run shifts in demand. This latter result is obtained by substituting the expectations-formation equation into the price-adjustment equation and then solving recursively for p. The resulting "reduced form" expression is:

$$(3) \quad p = ax_{-1} + ab \sum_{i=2}^{\infty} x_{-i}$$

where the second term on the right-hand side of the equation represents the delayed price impact of excess demand attributable to the operation of the expectations lag. Equation (3) states that once price anticipations enter into price-setting behavior, they tend to prolong the inflationary process. They cause current prices to respond not only to last period's excess demand but also to excess demand in the more distant past.

Finally, the model identifies excess demand as the proximate source of

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[5] The argument here is that by directly altering the expectations coefficient controls could speed the downward adjustment of price expectations necessary for the removal of inflation. Of course controls might also speed the adjustment process simply by constraining the actual rate of inflation below the level that would otherwise occur at a given level of unemployment. In the latter case, controls would take the expectations coefficient as a given constant.

inflation. Specifically, the model implies the following causal chain.

(1) Inflation is determined by excess demand and inflationary expectations.

(2) Inflationary expectations are generated by previous inflationary experience and hence by previous excess demand.

(3) Therefore, excess demand—past and present—is the proximate cause of inflation.

The inflation-generating role of excess demand is made explicit in the reduced-form equation (3) where past levels of x constitute the sole independent variables. The model does not explain how excess demand itself is generated. Such an explanation would require an additional equation expressing the relation between excess demand and the independent variables that determine it. At a very minimum, the list of independent variables would include the money stock since excess demand cannot be long sustained without the monetary growth necessary to support it. Note, however, that there is at least one situation in which excess demand would properly be treated as an independent variable and the money stock as a dependent variable. Such would be the case if society were committed to a full-employment objective in excess of the natural or equilibrium level of employment. Here the policymakers would be expected to pursue the target employment rate (or level of excess demand), passively permitting the money stock and the rate of inflation to adjust so as not to inhibit attainment of the full-employment goal. In this case the level of excess demand would enter the system as a datum to determine the size of the money stock. Thus, depending upon the policy regime, excess demand may appear either as an endogenous or an exogenous variable.

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Highlights

Officials of the Federal Reserve Bank of Richmond broke ground on April 18, 1975, for new Bank building on property overlooking the James River in the Main-to-the-James development area. Pictured from left to right are George C. Rankin, First Vice President, Robert P. Black, President, Robert W. Lawson, Jr., Chairman of the Board, E. Craig Wall, Sr., Deputy Chairman of the Board, and Richmond City Mayor, Thomas J. Bliley, Jr.

Earnings and Capital Accounts

Net earnings before payments to the United States Treasury increased by $12,919,998.92 to $425,908,683.34 in 1975. Six percent statutory dividends totaling $3,061,297.26 were paid to Fifth District member banks, and the sum of $420,755,286.08 was turned over to the United States Treasury.

Capital stock increased by $2,092,100 to $51,784,900 as member banks increased their stockholdings in this Bank, as required by law, to reflect the rise in their own capital and surplus accounts. The Bank's surplus account increased $2,092,100 to a total of $51,784,900.

Discount Rate

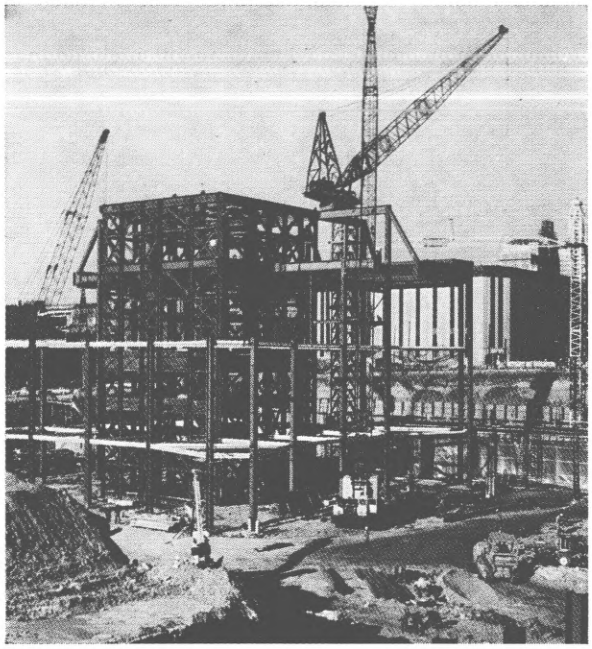
In early 1975 the Federal Reserve Bank of Richmond lowered its discount rate several times in response to the weakened economy and declining market interest rates. On January 6, the discount rate was reduced from 7¾ percent to 7¼ percent, following a quarter point reduction on December 10, 1974. The rate was further reduced to 6¾ percent on February 5, to 6¼ percent on March 10, and to 6 percent on May 16.

Discount operations at the Baltimore and Charlotte Offices were consolidated with those of the Richmond Office, effective June 1. This consolidation was effected in order to reduce costs and to help assure uniformity of discount window administration throughout the District.

New Building Program

Ground was broken for the new Richmond Bank building on April 18, 1975, and construction is well under way.

The Bank is in effect its own general contractor, acting through an agent, Daniel International Corporation, Greenville, South Carolina, serving as Construction Manager. Daniel is responsible for the daily supervision and coordination of the many contractors involved in the construction of the building, with Morse/Diesel, Inc. of New York serving as Construction Consultant. With a total project size of 1,046,000 gross square feet, the building will include a 26-story tower, a below-grade garage, and three additional levels below



The view is taken from the southeast corner of the building. The picture shows progress through mid-January 1976.

grade. Minoru Yamasaki & Associates of Troy, Michigan, designed the building.

The excavation of approximately 320,000 cubic yards of dirt and 20,000 cubic yards of granite left a four-acre hole, 40 to 50 feet deep. The underground portion of the building is now rapidly taking shape, and the mammoth hole is being filled with concrete and steel substructure. By the end of 1975, 5,153 cubic yards of concrete had been poured and 706 tons of steel had been erected. While there is still much work to be done below grade, steel work on the tower has begun.

There have been no major problems to date, and it is anticipated that the overall schedule for completion of the project will be maintained. The schedule calls for occupancy by late 1977 or early 1978.

The Board of Governors has authorized construction of a new Baltimore Branch Building following completion of the new building for the Richmond Office.

Check Collection Operations

An Automated Clearing House (ACH) was established at the Richmond Office as the first step in the implementation of an Electronic Funds Transfer System. The ACH receives deposit transactions on magnetic tape and sorts them electronically to endpoint banks and thrift institutions. Endpoint banks with computer capabilities receive magnetic tapes containing transactions from the ACH. All other endpoint banks receive hard copy printouts showing the details of transactions for manual or mechanical posting to their depositors' accounts. The ACH is now processing payroll deposit transactions for the U.S. Air Force and the Virginia Automated Clearing House Association (VACHA) banks. Other transactions, both debit and credit, will be handled by the ACH as more banks and thrift institutions become participants.

Regional clearing centers at Richmond, Charlotte, and Columbia were fully implemented in April to permit overnight collection of checks on intra-territory banks. Responsibility for the clearing of checks for eastern North Carolina banks has been assumed by the Charlotte Office and responsibility for all of South Carolina by the Columbia Office. In September, the Charlotte Office opened three additional relay stations in Greenville, Lumberton, and Raleigh.

Plans are to have the West Virginia Regional Clearing Center operational by the fourth quarter of 1976. Richard L. Hopkins has been appointed Assistant Vice President in charge of the Center, and a building has been leased in Charleston, West Virginia, to house the Center. In addition, the Baltimore Office plans to relocate its check operations in January 1976 in leased quarters in suburban Baltimore.

Fifth District Communications

The Communications System at Culpeper, which is interconnected with computer communications systems in each Federal Reserve District experienced an 11 percent increase in traffic in 1975. Further significant increases are expected in the near future because of changes in the payments mechanism. A replacement program for certain equipment within the Communications System was begun in 1975. With the Communications System now five years old, selected equipment is being replaced to insure continued satisfactory operation.

Fiscal Agency

In 1975, a new method of auctioning Treasury securities was introduced by the Treasury Department. The new auctioning method solicits bids by yield rather than by price, which eliminates the possibility of new securities being issued above par and confusing individual investors.

The Treasury Department commemorated the Nation's Bicentennial Anniversary with a redesign of the Series E Savings Bond. Sale of the redesigned bond began in May and will continue through 1976. The Treasury also announced the offering of Individual Retirement Bonds pursuant to the Employee Retirement Income Security Act of 1974. These bonds, which are especially designed for persons who are not covered by a retirement plan, went on sale in January.

New Member Banks

The following newly chartered banks in the Fifth District opened for business during the year as members of the Federal Reserve System.

National Banks

Mountain National Bank	Beaver, West Virginia	April 1
Hilton Head National Bank	Hilton Head Island, South Carolina	April 7
Century National Bank	Bethesda, Maryland	June 7
Republic National Bank	Columbia, South Carolina	June 30
Lincoln National Bank	Gaithersburg, Maryland	September 25
Gulf National Bank	Sophia, West Virginia	November 21
Dominion National Bank of Fredericksburg	Fredericksburg, Virginia	December 5
Diplomat National Bank	Washington, D. C.	December 15

State Banks

Miner's and Merchant's Bank and Trust Company	Grundy, Virginia	January 2
The Bank of Eden	Eden, North Carolina	January 13
Bank of Frederick County	Stephens City, Virginia	March 21
Bank of Harpers Ferry	Harpers Ferry, West Virginia	July 17

The following state-chartered banks converted to membership in the Federal Reserve System during the year.

Bank of Virginia Trust Company (Nondepository Institution)	Richmond, Virginia	April 14
Bank of Virginia-Roanoke Valley (converted to Bank of Virginia, N.A.)	Vinton, Virginia	August 1

Changes in Directors

Fifth District member banks elected one Class A and one Class B Director to three-year terms on the Richmond Board of Directors in the early fall. J. Owen Cole, Chairman of the Board and President, First National Bank of Maryland, Baltimore, Maryland, was elected a Class A Director to succeed John H. Lump-

kin, Chairman of the Board and Chief Executive Officer, The South Carolina National Bank, Columbia, South Carolina, whose term expired at the end of 1975. Osby L. Weir, Retired General Manager, Metropolitan Washington-Baltimore Area, Sears, Roebuck and Company, who resides in Kensington, Maryland, was reelected by banks in Group 1 as a Class B Director.

The Richmond Board reappointed William W. Bruner, Chairman of the Board and President, First National Bank of South Carolina, Columbia, South Carolina, to a three-year term on the Charlotte Board. Catherine B. Doehler, Senior Vice President and Secretary, Chesapeake Financial Corporation, Baltimore, Maryland, was appointed by the Richmond Board to a three-year term on the Baltimore Board to succeed James R. Chaffinch, Jr., President, The Denton National Bank, Denton, Maryland, whose term expired at the end of 1975.

The Board of Governors designated E. Angus Powell, President, Chesterfield Land & Timber Corporation, Richmond, Virginia, Chairman of the Board of Directors for 1976. E. Craig Wall, Sr., Chairman of the Board, Canal Industries, Inc., Conway, South Carolina, was redesignated Deputy Chairman.

The Board of Governors appointed Maceo A. Sloan, Senior Vice President, North Carolina Mutual Life Insurance Company, Durham, North Carolina, to a three-year term on the Richmond Board, effective January 1, 1976, to succeed Robert W. Lawson, Jr., Senior Partner, Charleston Office, Steptoe & Johnson, Charleston, West Virginia, whose term expired at the end of 1975.

The Board of Governors reappointed Robert C. Edwards, President, Clemson University, Clemson, South Carolina, to a three-year term on the Charlotte Board, effective January 1, 1976. The Board of Governors also reappointed David W. Barton, Jr., President, The Barton-Gillet Company, Baltimore, Maryland, to a three-year term on the Baltimore Board, effective January 1, 1976.

Federal Advisory Council

The Board of Directors appointed John H. Lumpkin, Chairman of the Board and Chief Executive Officer, The South Carolina National Bank, Columbia, South Carolina, to a one-year term beginning January 1, 1976, as the Fifth Federal Reserve District representative on the Federal Advisory Council. The twelve-member Council, consisting of one member from each of the Federal Reserve Districts, meets at least quarterly in Washington with the System's Board of Governors to discuss business conditions and other topics of current interest to the System. Mr. Lumpkin succeeds Thomas I. Storrs, Chairman of the Board, NCNB Corporation, Charlotte, North Carolina.

Changes in Official Staff

In February, Charles H. Imel, Assistant Vice President, Culpeper Facility, elected to take early retirement after nearly 38 years of service to the Bank. In April, John G. Stoides was named Vice President at the Culpeper Office; and in June, Elizabeth W. Angle was promoted to Vice President at the Richmond Office.

Several changes in the official staff at the Culpeper Facility occurred in August. J. Gordon Dickerson, Jr., Vice President in charge of the Culpeper Office, elected to take early retirement after 37 years of service. Coincident with the retirement of Mr. Dickerson, Albert D. Tinkelenberg, Vice President, was named officer in charge of Culpeper. James G. Dennis was promoted to Assistant Cashier.

Victor Turyn was named Assistant Cashier at the Baltimore Office in September.

In November, Richard L. Hopkins was appointed Assistant Vice President in charge of the West Virginia Regional Clearing Center, which should open in Charleston, West Virginia, during the fourth quarter of 1976.

In December, James D. Reese and John A. Vaughan were promoted to Assistant Vice President at the Richmond Office, and Robert F. Stratton was promoted to Assistant Vice President at the Charlotte Office, all effective January 1, 1976.

Summary of Operations

Check Clearing & Collection	1975	1974
Dollar amount		
Commercial bank checks[1]	376,290,433,000	316,943,290,000
Government checks[2]	33,364,921,000	27,457,303,000
Return items	3,733,115,000	3,240,226,000
Number of items		
Commercial bank checks[1]	1,010,313,000	963,470,000
Government checks[2]	91,981,000	83,555,000
Return items	13,402,000	11,371,000
Currency & Coin		
Currency disbursed—Dollar amount	5,556,979,800	5,173,286,100
Coin disbursed—Dollar amount	250,493,039	220,512,550
Dollar amount of currency destroyed	1,543,099,000	1,562,086,030
Daily average of currency destroyed		
Dollar amount	6,123,409	6,174,253
Number	1,037,824	1,034,596
Discount & Credit		
Dollar amount		
Total loans made during year	2,374,944,000	26,692,631,203
Daily average loans outstanding	9,424,381	105,504,471
Number of banks borrowing during the year	61	137
Fiscal Agency Activities		
Marketable securities delivered or redeemed		
Dollar amount	78,261,028,176	44,650,129,060
Number	225,285	314,954
Coupons redeemed		
Dollar amount	85,173,485	72,500,814
Number	246,111	199,785
Savings bond and savings note issues		
Dollar amount	525,390,098	497,387,663
Number	11,205,945	10,922,168
Savings bond and savings note redemptions		
Dollar amount	551,634,294	563,072,813
Number	12,582,780	12,574,930
Depositary receits for withheld taxes		
Dollar amount	17,422,497,473	15,825,764,037
Number	3,595,416	3,217,195
Transfers of Funds		
Dollar amount	1,319,239,449,009	1,192,906,797,259
Number	1,091,439	903,978

[1] Excluding checks on this Bank.

[2] Including postal money orders.

Comparative Financial Statements

Condition

Assets:	Dec. 31, 1975	Dec. 31, 1974
Gold certificate account	$ 980,758,985.89	$ 906,917,837.26
Special Drawing Rights certificate account	45,000,000.00	36,000,000.00
Federal Reserve notes of other Federal Reserve Banks	163,456,857.00	96,695,118.00
Other cash	41,702,042.72	17,096,290.84
LOANS AND SECURITIES:		
Loans to member banks	7,100,000.00	50,400,000.00
Federal agency obligations	490,667,000.00	374,620,000.00
U. S. Government securities:		
Bills	3,006,609,000.00	2,929,014,000.00
Certificates	----------	----------
Notes	3,554,581,000.00	3,187,537,000.00
Bonds	446,186,000.00	261,588,000.00
TOTAL U. S. GOVERNMENT SECURITIES	7,007,376,000.00	6,378,139,000.00
TOTAL LOANS AND SECURITIES	7,505,143,000.00	6,803,159,000.00
Cash items in process of collection	2,004,212,527.61	1,081,878,452.08
Bank premises	22,457,016.36	14,400,594.88
Operating equipment	151,062.22	----------
Other assets	111,288,192.13	103,259,293.89
Interdistrict settlement account	−235,648,987.59	----------
TOTAL ASSETS	$10,638,520,696.34	$9,058,406,586.95
Liabilities:		
Federal Reserve notes	$ 7,139,692,961.00	$6,493,192,313.00
DEPOSITS:		
Member bank reserves	1,424,511,439.34	1,166,930,398.05
U. S. Treasurer—general account	406,887,817.52	162,487,877.76
Foreign	14,443,000.00	16,240,000.00
Other	29,224,783.11	50,950,345.75
TOTAL DEPOSITS	1,875,067,039.97	1,396,608,621.56
Deferred availability cash items	1,437,571,220.35	985,166,474.07
Other liabilities	82,619,675.02	84,053,578.32
TOTAL LIABILITIES	10,534,950,896.34	8,959,020,986.95
Capital Accounts:		
Capital paid in	51,784,900.00	49,692,800.00
Surplus	51,784,900.00	49,692,800.00
TOTAL LIABILITIES AND CAPITAL ACCOUNTS	$10,638,520,696.34	$9,058,406,586.95
Contingent liability on acceptances purchased for foreign correspondents	----------	$ 55,036,800.00

Earnings and Expenses

EARNINGS:	1975	1974
Loans to member banks	$ 1,240,861.43	$ 15,331,149.15
Interest on U. S. Government securities	482,490,978.71	448,313,739.99
Foreign currencies	300,711.65	381,877.42
Other earnings	38,530.85	145,096.65
TOTAL CURRENT EARNINGS	484,071,082.64	464,171,863.21
EXPENSES:		
Operating expenses (including depreciation on bank premises) after deducting reimbursements received for certain Fiscal Agency and other expenses	41,837,190.21	39,891,328.18
Assessment for expenses of Board of Governors	1,870,000.00	2,287,600.00
Cost of Federal Reserve currency	4,230,047.47	3,694,938.25
NET EXPENSES	47,937,237.68	45,873,866.43
CURRENT NET EARNINGS	436,133,844.96	418,297,996.78
ADDITIONS TO CURRENT NET EARNINGS:		
Profit on sales of U. S. Government securities (net)	2,928,888.43	----
All other	162,496.54	135,856.86
TOTAL ADDITIONS	3,091,384.97	135,856.86
DEDUCTIONS FROM CURRENT NET EARNINGS:		
Losses on sales of U. S. Government securities (net)	----	3,071,996.67
Losses on Foreign Exchange transactions	13,298,860.69	1,902,026.85
All other	17,685.90	471,145.70
TOTAL DEDUCTIONS	13,316,546.59	5,445,169.22
NET ADDITIONS OR DEDUCTIONS	−10,225,161.62	−5,309,312.36
NET EARNINGS BEFORE PAYMENTS TO U. S. TREASURY	$425,908,683.34	$412,988,684.42
Dividends paid	$ 3,061,297.26	$ 2,936,699.16
Payments to U. S. Treasury (Interest on Federal Reserve notes)	420,755,286.08	407,257,185.26
Transferred to surplus	2,092,100.00	2,794,800.00
TOTAL	$425,908,683.34	$412,988,684.42

Surplus Account

Balance at close of previous year	$ 49,692,800.00	$ 46,898,000.00
Addition account of profits for year	2,092,100.00	2,794,800.00
BALANCE AT CLOSE OF CURRENT YEAR	$ 51,784,900.00	$ 49,692,800.00

Capital Stock Account

(Representing amount paid in, which is 50% of amount subscribed)

Balance at close of previous year	$ 49,692,800.00	$ 46,898,000.00
Issued during the year	2,369,850.00	3,736,000.00
	$ 52,062,650.00	$ 50,634,000.00
Cancelled during the year	277,750.00	941,200.00
BALANCE AT CLOSE OF CURRENT YEAR	$ 51,784,900.00	$ 49,692,800.00

Directors (December 31, 1975)

Richmond

Robert W. Lawson, Jr. — *Chairman of the Board and Federal Reserve Agent*

E. Craig Wall, Sr. — *Deputy Chairman of the Board*

Class A

James A. Hardison, Jr. — *Chairman and President, The First National Bank of Anson County*
Wadesboro, North Carolina
(Term expires December 31, 1977)

John H. Lumpkin — *Chairman of the Board and Chief Executive Officer*
The South Carolina National Bank
Columbia, South Carolina
(Term expired December 31, 1975)

Succeeded by: J. Owen Cole
Chairman of the Board and President
First National Bank of Maryland
Baltimore, Maryland
(Term expires December 31, 1978)

Plato P. Pearson, Jr. — *Chairman and President, The Citizens National Bank*
Gastonia, North Carolina
(Term expires December 31, 1976)

Class B

Andrew L. Clark — *President, Andy Clark Ford, Inc.*
Princeton, West Virginia
(Term expires December 31, 1976)

Henry Clay Hofheimer, II — *Chairman of the Board, Virginia Real Estate Investment Trust*
Norfolk, Virginia
(Term expires December 31, 1977)

Osby L. Weir — *Retired General Manager, Sears, Roebuck and Co.*
Bethesda, Maryland
(Term expires December 31, 1978)

Class C

Robert W. Lawson, Jr. — *Senior Partner, Charleston Office, Steptoe & Johnson*
Charleston, West Virginia
(Term expired December 31, 1975)

Succeeded by: Maceo A. Sloan
Senior Vice President
North Carolina Mutual Life Insurance Co.
Durham, North Carolina
(Term expires December 31, 1978)

E. Angus Powell — *President, Chesterfield Land & Timber Corp.*
Richmond, Virginia
(Term expires December 31, 1976)

E. Craig Wall, Sr. — *Chairman of the Board, Canal Industries, Inc.*
Conway, South Carolina
(Term expires December 31, 1977)

Member Federal Advisory Council

Thomas I. Storrs — *Chairman of the Board, NCNB Corporation*
Charlotte, North Carolina
(Term expired December 31, 1975)

Succeeded by: John H. Lumpkin
Chairman of the Board and Chief Executive Officer
The South Carolina National Bank
Columbia, South Carolina
(Term expires December 31, 1976)

Baltimore

David W. Barton, Jr. — *President, The Barton-Gillet Company*
Baltimore, Maryland
(Term expires December 31, 1978)

J. Pierre Bernard — *Chairman of the Board, The Annapolis Banking and Trust Company*
Annapolis, Maryland
(Term expires December 31, 1977)

James R. Chaffinch, Jr. — *President, The Denton National Bank*
Denton, Maryland
(Term expired December 31, 1975)

Succeeded by: Catherine B. Doehler
Senior Vice President and Secretary
Chesapeake Financial Corporation
Baltimore, Maryland
(Term expires December 31, 1978)

*James G. Harlow — *President, West Virginia University*
Morgantown, West Virginia
(Term expires December 31, 1977)

I. E. Killian — *Manager, Eastern Region, Exxon Company, U.S.A.*
Baltimore, Maryland
(Term expires December 31, 1976)

J. Stevenson Peck — *Chairman of the Board, Union Trust Company of Maryland*
Baltimore, Maryland
(Term expires December 31, 1976)

Lacy I. Rice, Jr. — *President, The Old National Bank of Martinsburg*
Martinsburg, West Virginia
(Term expires December 31, 1976)

Charlotte

W. B. Apple, Jr. — *President, First National Bank of Reidsville*
Reidsville, North Carolina
(Term expires December 31, 1976)

Charles F. Benbow — *Senior Vice President and Director, R. J. Reynolds Industries, Inc.*
Winston-Salem, North Carolina
(Term expires December 31, 1977)

T. L. Benson — *President, The Conway National Bank*
Conway, South Carolina
(Term expires December 31, 1976)

William W. Bruner — *Chairman of the Board and President, First National Bank of South Carolina*
Columbia, South Carolina
(Term expires December 31, 1978)

*Charles W. DeBell — *General Manager, North Carolina Works, Western Electric Company, Inc.*
Winston-Salem, North Carolina
(Term expires December 31, 1976)

Robert C. Edwards — *President, Clemson University*
Clemson, South Carolina
(Term expires December 31, 1978)

John T. Fielder — *President, J. B. Ivey and Company*
Charlotte, North Carolina
(Term expires December 31, 1976)

*Branch Board Chairman

Officers (January 1, 1976)

Richmond

Robert P. Black	*President*
George C. Rankin	*First Vice President*
Welford S. Farmer	*Senior Vice President and Special Legal Adviser*
John L. Nosker	*Senior Vice President*
James Parthemos	*Senior Vice President and Director of Research*
John F. Rand	*Senior Vice President*
Raymond E. Sanders, Jr.	*Senior Vice President*
Elizabeth W. Angle	*Vice President*
Lloyd W. Bostian, Jr.	*Vice President*
J. Alfred Broaddus, Jr.	*Vice President*
John G. Deitrick	*Vice President*
George B. Evans	*Vice President*
William C. Glover	*Vice President*
William D. Martin, III	*General Counsel*
Robert D. McTeer, Jr.	*Vice President*
Arthur V. Myers, Jr.	*Vice President*
Chester D. Porter, Jr.	*Vice President*
Aubrey N. Snellings	*Vice President*
Andrew L. Tilton	*Vice President*
James F. Tucker	*Vice President*
Joseph F. Viverette	*Vice President*
J. Lander Allin, Jr.	*Assistant Vice President*
Fred L. Bagwell	*Assistant Vice President*
Jackson L. Blanton	*Assistant Vice President*
William E. Cullison	*Research Officer*
Wyatt F. Davis	*Chief Examiner*
Roy L. Fauber	*Assistant Vice President*
William C. Fitzgerald	*Assistant General Counsel*
John E. Friend	*Assistant Vice President*
Bradley H. Gunter	*Assistant Vice President and Secretary*
Robert B. Hollinger, Jr.	*Assistant Vice President*
Richard L. Hopkins	*Assistant Vice President*
John C. Horigan	*Assistant Vice President*
William E. McLean	*Assistant Vice President*
Hobert D. Pierce	*Assistant Vice President*
Joseph C. Ramage	*Assistant Vice President*
Barthonhue W. Reese	*Assistant Vice President*
James D. Reese	*Assistant Vice President*
Frank D. Stinnett, Jr.	*Assistant Vice President*
John A. Vaughan	*Assistant Vice President*
Wilbur C. Wilson	*Assistant Vice President*
Jack H. Wyatt	*Assistant Vice President*
James R. Slate	*Assistant Counsel*
David B. Ayres, Jr.	*General Auditor*
H. Lewis Garrett	*Assistant General Auditor*

Baltimore

Jimmie R. Monhollon	*Senior Vice President*
William E. Pascoe, III	*Vice President*
Gerald L. Wilson	*Vice President*
Ronald B. Duncan	*Assistant Vice President*
Ronald E. Gould	*Assistant Vice President*
Charles P. Kahler	*Assistant Vice President*
Robert A. Perry	*Assistant Vice President*
Victor Turyn	*Assistant Cashier*

Charlotte

Stuart P. Fishburne	*Senior Vice President*
Winfred W. Keller	*Assistant Vice President*
Fred C. Krueger, Jr.	*Assistant Vice President*
O. Louis Martin, Jr.	*Assistant Vice President*
Harry B. Smith	*Assistant Vice President*
Thomas E. Snider	*Assistant Vice President*
Robert F. Stratton	*Assistant Vice President*
Jefferson A. Walker	*Assistant Vice President*

Columbia

Boyd Z. Eubanks	*Vice President*
R. Wayne Stancil	*Assistant Vice President*

Culpeper

John G. Stoides	*Vice President*
Albert D. Tinkelenberg	*Vice President*
Kenneth A. Adams	*Assistant Vice President*
Dale M. Cunningham	*Assistant Vice President*
James G. Dennis	*Assistant Cashier*

Federal Reserve Bank of Richmond

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