

MONEY, BANKING AND INFLATING

A Useful Description



ECONOMIC EDUCATION BULLETIN

Published by
AMERICAN INSTITUTE FOR ECONOMIC RESEARCH
Great Barrington, Massachusetts

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A Note On Authorship

This edition of "Money, Banking and Inflating – A Useful Description," like many AIER publications, is the result of efforts by a number of individuals over a period of years. It is first and foremost a further extension of the seminal work of Col. E. C. Harwood (1900-1980), founder of AIER. Its contents rely heavily on research that was done at AIER by him or under his direction for nearly half a century. Appendix C, written by Col. Harwood, is reprinted here without change.

Lawrence S. Pratt, AIER Associate Director of Research and Education, prepared the first edition of "Money, Banking and Inflating" in 1981. Chapter I, written by Mr. Pratt, is largely unchanged from that edition, and portions of subsequent chapters reflect his earlier contributions. George Machen prepared the statistical charts and tables for the 1981 edition. Many of those have been updated for this edition.

However, this edition of "Money, Banking and Inflating" constitutes a major revision and expansion of our earlier work. It was prepared by AIER Senior Fellow Ernest P. Welker, and his new analysis traces recent major developments in the field of monetary economics that reflect a revival of interest in – and recognition of the importance of – lines of inquiry that Col. Harwood first developed decades ago.

ECONOMIC EDUCATION BULLETIN
Vol. XXVI No. 4 April 1986

Economic Education Bulletin (ISSN 0424-2769) (USPS 167-360) is published once a month at Great Barrington, Massachusetts, by American Institute for Economic Research, a scientific and educational organization with no stockholders, chartered under Chapter 180 of the General Laws of Massachusetts. Second class postage paid at Great Barrington, Massachusetts. Printed in the United States of America. Subscription: \$19 per year. POSTMASTER: Send address changes to *Economic Education Bulletin*, American Institute for Economic Research, Great Barrington, Massachusetts 01230.

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FOREWORD

AN experimenter seeking to condition animals to live on less and less food was repeatedly disappointed in the results. He reported in frustration that in repeated instances the subject animals invariably died — just when he was making dramatic progress in reducing their food intake.

U.S. monetary thought and developments since the 1930's have had aspects akin to the above tale. Because the U.S. monetary unit — the dollar — was for most of its history a weight of gold (or silver), the public developed confidence in the long-term buying power of the dollar. That confidence partly accounted for the market evolution by early in this century of institutional arrangements for a panoply of dollar-denominated financial claims — from immediately redeemable ones used as purchasing media to some having an original maturity of 100 years.

The resulting complex money-credit system, being the product of trial-and-error entrepreneurial activities and subject to human folly, was not without deficiencies. Thus, money-credit "crises" appeared from time to time. The Great Depression was a major one.

Monetary experimenters, seeing the system's defects but losing sight of its essential foundation, imagined possible cures for the various perceived defects. By force of law, imagined cures were imposed on one, then another, and another institutional arrangement that had evolved through voluntary market activities to meet needs. Elaborate theories were devised about why people hold various financial assets and how changes in their desired holdings affect the goods sector of the economy.

The economic theory known as Keynesianism, which originated in the mid-1930's, gave a minor theoretical role to "money." Money and credit were to be as plentiful as necessary to keep interest rates low in order to foster capital spending and enable the Government to fund its Budget deficits with low-cost debt issues.

When in spite of — indeed, because of — repeated bouts of "easy" money, interest rates and general prices started to rise during the 1960's, money and credit received closer theoretical attention. Dr. Milton Friedman was the most influential economist to restore theoretical support for the idea that money does matter. Indeed, "Monetarism" was noted for the view that fiscal policy (planned deficits) "worked" primarily because of

associated "easy" money. "Money matters most" summarized Monetarist thought.

With few exceptions, however, most theoretical work on money and credit focused on the financial claims that were used as purchasing media, as close substitutes for purchasing media (time deposits, for example), or as other store-of-value financial assets. Practical attention to, and theory about, monetary units themselves (monetary standards) and their connection to the broader institutional issues was virtually nonexistent. As the monetary experimenters tinkered both in policy and theory with parts of the system, the U.S. dollar as a monetary unit was transformed *ad hoc* from being a specified weight of fine gold to being a totally fiat unit.

Declaring, without supporting warranted theory, that prior histories of fiat-money failures no longer were relevant, the experimenters predicted that the ushering in of the fiat dollar in 1971 was the final control essential to their achieving the monetary stability they imagined they were approaching.

But like the experimenter in the opening anecdote, failure struck the monetary experimenters just when they seemed so close to success. Instead of greater stability and predictability, money-credit conditions since the early 1970's have been the most volatile and uncertain in many decades.

This has moved a number of monetary theorists to focus anew on the most basic monetary questions. Much new work, most of it renewals of pre-1930's thought, has been done in the past decade regarding monetary standards and the features and consequences of market-determined vs. government-determined money-credit systems. Some of it is referred to in this booklet. Not all is along lines we think useful. And what line will emerge as the one to dominate thought and be most influential for the evolution of the system is unknown. It is promising in itself, however, that the right questions are now being explored by many students of money. This is reason to be more hopeful that money-credit thinking and policy will be more sound in the future.

Our views about sound and unsound money and banking are presented in this booklet. As we point out at various places herein, the ideas of some other monetary students are close to ours in some major areas. But as far as we know, nobody else has incorporated in his views all the aspects that we believe are essential for a sound money-credit system.

I.

WHAT A DOLLAR WAS

IN Colonial times many items circulated as purchasing media, from tobacco to gold. Even the precious metals that served as media of exchange included a wide variety of coins in various conditions of wear and tear. Among these was the Spanish milled dollar. This silver coin was also known as the "pillar dollar" (because of its design), or a "piece of eight" (because its denomination was 8 *reales*). When the Continental Congress considered problems of raising and disbursing funds, its resolutions usually specified these dollars. The rejection of English monetary units presumably reflected the fact that the Spanish coin then was the most widely circulated and trusted coin in America.

Plans for minting Continental currency never progressed past the making of patterns, and the "Continental" was entirely a paper currency promising payment in Spanish milled dollars. Large issues by Congress, and counterfeiting of them by the British, quickly drove the Continental to a discount. At one point, as many as 500 or even 1,000 Continentals may have exchanged for one Spanish milled dollar. The U.S. Government eventually offered to redeem the Continental currency at the rate of 1 dollar for 100 of the old issue, but only a small fraction was so redeemed. Presumably, most of the remainder had been discarded by its owners as virtually worthless. This episode henceforth made Americans suspicious of banks in general and of currency not linked to gold or silver.

The effects of the collapse of the Continental currency are easily overrated. Many holders of Continentals suffered losses, but apparently there were few debts denominated in Continentals other than the issues themselves. The colonists were used to near-chaos in currency matters, and for the most part they were able to put the Continental in perspective with paper money issued by the states, wampum, pelts, strange coins, etc. During the time of the Continental dollar, much business continued to be transacted in specie (monetary metal), and legal tender laws proved to be unenforceable. General Washington himself instructed the manager of his estates to accept rents only at "intrinsic worth," and he later noted that the law could never "have been intended to make a man take a shilling or six-pence in the pound for a just debt."

Quite clearly, the Spanish milled dollar, not the Continental, was the ancestor of the present U.S. dollar. The Spanish coin remained in circulation in the United States until well into the 19th century,

and it was legal tender until 1857. Today its footprints are still visible in the practice of trading securities in fractions of eighths instead of decimals and in the reference to 25 cents as "two bits."

The U.S. dollar was established in 1792 when the Congress authorized the minting of coins with specifications shown in Table 1. The weight of the "dollar or unit," set at 371.25 grains of fine (.995 pure) silver, was determined from an estimate of the approximate average silver content of the "pillar dollar" then in circulation in the United States. (The silver content of individual coins varied because of wear and differences in mintings at Seville, Mexico City, Peru, etc., but apparently most circulated at par with one another.) The new fractional silver coins were exactly proportional in silver content to the dollar, or unit, and the gold content of the gold coins also was exactly proportional at a ratio of 15 silver to 1 gold. For example, the gold weight of the \$10 eagle was exactly two-thirds (10/15) the silver weight of the one dollar, or unit. This 15:1 ratio was presumed to be the market rate of exchange between silver and gold.

The copper weights of the cent and half-cent also were originally designed to reflect intrinsic value, but this proposed "trimetalism" was never implemented. The copper coins' weights were reduced before any were issued, with the result that the mint could purchase copper to be made into coins having a face value larger than the cost of the metal. The profit accrued to the Treasury as "sei-

Table 1
UNITED STATES COINAGE
AUTHORIZED BY THE MINT ACT OF APRIL 2, 1792

| <i>Gold Coins</i> | <i>Face Value</i> | <i>Metal Content (In Grains)</i> |
|---------------------|-------------------|--------------------------------------|
| Eagle | \$10.00 | 247.5000 |
| Half eagle | .50 | 123.7500 |
| Quarter eagles | .25 | 61.8750 |
| <i>Silver Coins</i> | | |
| Dollar or unit | 1.00 | 371.2500 |
| Half dollar | .50 | 185.0250 |
| Quarter dollar | .25 | 92.8125 |
| Disme (dime) | .10 | 37.1250 |
| Half disme (nickel) | .05 | 18.5025 |
| <i>Copper Coins</i> | | |
| Cent | .01 | 264.0000* |
| Half cent | .005 | 132.0000* |

Note: Gold coins were an alloy eleven parts fine to one part silver-copper alloy and silver coins were an alloy 1,485 parts fine to 179 parts copper. The weights shown in the table are fine weight only.

* Reduced to 208 grains for the copper cent and 104 grains for the half cent by Act of January 14, 1793.

gniorage." In recognition of their lack of intrinsic value, copper coins were legal tender only for relatively small debts (for those less than \$5), and purchases of copper by the mint were limited to specifically authorized amounts. In contrast, the mint was not authorized to buy any specific amount of gold or silver. Gold and silver coins were minted only when private citizens brought bullion or foreign coins to the mint for that purpose.

Thus, original U.S. coins had a specific weight of gold or silver in them. However, this "bimetallism" soon encountered the problem that the market exchange ratio differed from the silver-gold ratio fixed in coins. However accurate may have been the founding fathers' estimate of the market ratio in 1792, it soon developed that gold eagles could be exchanged for more, say, pounds sterling in London than for the equivalent face value of U.S. silver coins. Therefore, U.S. gold coins were exported in large numbers, and few remained in circulation in the United States. Interestingly, U.S. silver dollars also were exported, apparently because they were somewhat lighter than the "pillar dollars" then circulating in Spanish areas where the U.S. issue was accepted at par. Only fractional silver U.S. coins stayed in the country, and, as noted earlier, the Spanish coin remained the principal dollar coin in use here for many years.

DEBASEMENT

This situation prevailed until the 1830's. In 1834 the gold content of the eagle was decreased by Congress to 232 grains of fine gold. The new mint price was \$20.67 per troy ounce, reflecting a 6.18 percent devaluation from the \$19.34 set in 1792. This change resulted in a slight overvaluation of gold in relation to silver. The foreign flows of coins discussed above were reversed. The gold imports, combined with increased domestic gold production, brought gold coins into general circulation in the United States during the 1840's and 1850's.

In 1853, after many fractional coins had been exported, their silver content was decreased to the rate of 345.6 grains per dollar, but the silver dollar remained 371.25 grains. The U.S. Mint was authorized to purchase limited amounts of silver bullion for the fractional silver coins and to issue such coins at a profit, as with the copper cents. "Free coinage," coinage initiated by private citizens' bringing metal to the mint, remained in effect for the silver dollar at 371.25 grains. But few silver dollars were issued, and the coin fell into disuse.

By design or oversight, the Coinage Act of 1873 made no provision for the minting of the silver dollar. Without the guarantee of free coinage, the price of silver fell below the "mint price" of \$1.29 per ounce. Subsequent legislation authorized re-

sumed mintings of silver dollars, but it did not authorize resumption of their free coinage. Consequently, the silver dollar became a subsidiary coin whose intrinsic value was less than its purchasing power.

Through 1873, the difficulties of "bimetallism" were resolved by reducing the metal content of the undervalued coins -- gold or silver. After 1873, gold became the premier monetary commodity, and there were no further devaluations until President Franklin D. Roosevelt's "New Deal."

Shortly after taking office, President Roosevelt suspended convertibility of U.S. currency obligations into gold (all other bank-related payments also were suspended for a brief period), ordered U.S. persons to deliver their gold coin and bullion to the Government, and subsequently raised the "price" of gold to \$35 per ounce. This new price was paid only to domestic miners and foreigners who sold gold to the Treasury. Other U.S. citizens and persons could not legally hold gold bullion or nonnumismatic coins in the United States. One of the last acts of President Eisenhower was to proscribe gold ownership overseas.

In 1964 the silver content of newly minted U.S. subsidiary coins was eliminated and replaced by a cupronickel "sandwich" (except for the half-dollar, which contained a reduced amount of silver until 1970). In 1967 the U.S. Government discontinued sales of silver at the mint price, and the price of silver subsequently rose above \$1.29 per ounce.

In 1968 the Treasury refused to redeem dollar claims (sell gold) at \$35 per ounce to anyone except foreign official institutions. As a result, miners, licensed users, and private foreigners paid and received a higher, market-determined price. Finally, in August 1971, the United States closed the "gold window" even to foreign official institutions. The official "price" of gold was increased to \$38 per ounce in 1972 and to \$42.22 per ounce in 1973. But as some droll commentators have noted, the official "price" today is the price at which the *United States refuses to redeem paper dollars*.

At the turn of the year 1975, Americans again could legally own and hold gold in any form. On January 6th of that year and from time to time thereafter until November 1, 1979, the U.S. Treasury sold a total of 17,053,900 ounces of gold at 21 "auctions." For all sales, the paper dollar price received by the U.S. Treasury for the gold was markedly above the official "price," a "price" that is meaningless as an expression of exchange value.

A UNIQUE EPISODE

Clearly, the U.S. dollar originally was a specified amount of gold or silver in minted coins. For most of the Nation's history, a dollar claim could be ex-

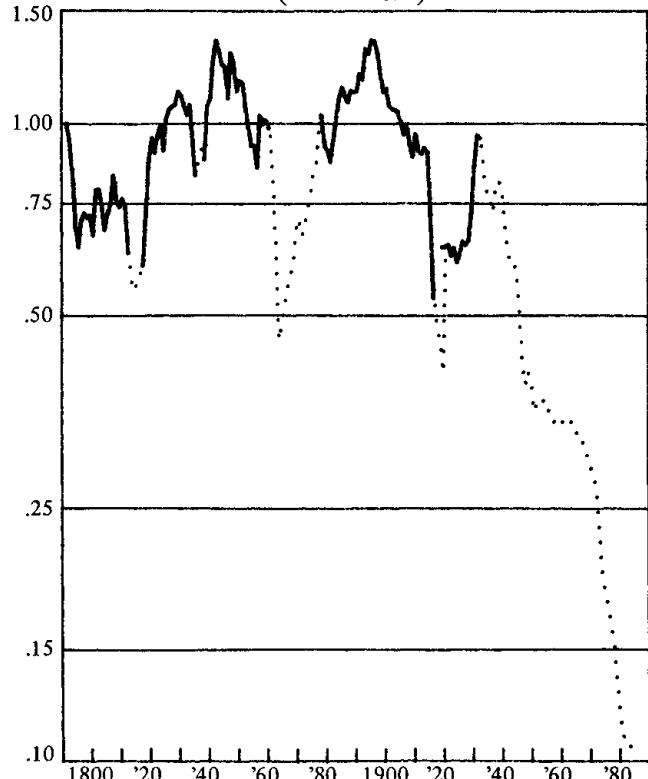
changed for at least 371.25 grains of silver. Sometimes a dollar could be exchanged for a much larger weight of silver, but only during the past 19 years of the 194 years since the United States has had its own monetary unit, has a dollar been exchangeable for markedly less than 371.25 grains of silver. Currently a paper dollar can buy about 85 grains of silver.

Similarly, the dollar also has been a specific weight of gold.¹ Before 1971, dollar obligations were explicit or implicit promises to deliver specific amounts of gold. But now, as during other periods when specie payments were suspended, irredeemable paper dollar claims exchange at a discount to their officially declared gold value. Today, a paper dollar can be exchanged for only about one-eighth its officially stated gold weight.

Far from being consistent with the historical experience of this country, the current paper currency period is a unique episode in U.S. monetary his-

¹ A dollar was 24.75 grains of fine (.995 pure) gold from 1792 to 1834, 23.22 grains from 1834 to 1933, 13.71 grains from 1934 to 1971, 12.63 grains from 1872 to 1973, and 11.37 grains since then. The equivalent gold "prices" per ounce were, respectively, \$19.39, \$20.67, \$35.00, \$38.00, and \$42.22.

Chart 1
PURCHASING POWER OF THE DOLLAR
(1792 = 1.00)



Note: Purchasing power was calculated from the Wholesale Price Index (Source: U.S. Department of Labor). The dotted portions of the curve are periods when redeemability of the dollar into the monetary commodities at fixed rates was suspended.

tory, as Chart 1 suggests. These purchasing power figures reflect changes in the Producer Price Index (formerly called the Wholesale Price Index), which is only one possible measure of purchasing power. (Another is the Consumer Price Index.) As the chart shows, what a dollar could buy has fluctuated throughout its history – down during some periods (when prices generally were rising) and up during others (when prices generally were falling). The periods of major purchasing power losses were associated wars. In this respect the dollar's loss of buying power during the 1940's was not unusual.

THE PAPER DOLLAR

There was, however, no postwar price deflation that would have restored the purchasing power of the dollar. Most observers have greatly applauded the prevention of the postwar deflation, since periods of deflation involve difficult economic adjustments and hardship for many people. But as events during the 1970's were to prove, the technique U.S. officials employed to prevent the postwar deflation – essentially creating excess dollar purchasing media and, by law, blocking dollar-claim holders from demanding gold for their excess holdings – fostered another set of problems. The resulting high and variable rates of price inflation (especially under a system of taxation and regulation geared for a stable monetary unit) discouraged saving, long-term investment, and productive activity. At the same time, it encouraged debt, short-run investment, and activity directed at preserving wealth rather than creating more of it. Because of "bracket creep" and the easy financing of deficits, the technique also promoted behemoth Government spending programs, related deficits, and pervasive interference with the private economy.

By the late 1970's there was an incipient "flight from the dollar" into selected other currencies (perceived to provide more buying-power protection than the dollar) and into gold. As Chart 2 reveals, the purchasing power of gold rose to far above even the upper bound of its long-term range, as wealth holders sought protection from highly risky paper money and other government actions hostile to private wealth creation and preservation.

Signs that the people increasingly were rejecting the dollar and pressure from foreign officials forced U.S. officials to announce in October 1979 a change in the intermediate targets of monetary policy. (The ultimate broad targets remained to promote rapid, sustainable economic growth, price-level stability and a balance in international payments.) Nominal short-term interest rates ostensibly were to be abandoned as the primary intermediate policy guide; target rates of growth in the fiat-dollar money supply aggregates were to be the

new objective (see next chapter). And, according to the announcement, the ranges of those target growth rates were to be reduced gradually over a number of years to, eventually, supposed noninflationary levels. Immediately following the announcement, growth of the M1 money series did slow sharply, and it even turned negative in the second quarter of 1980. Subsequently, the growth rate of M1 fluctuated markedly, as new payments media became widely used and U.S. monetary officials repeatedly reacted to evolving developments that were contrary to the theory behind money-supply targeting (discussed further herein).

For purposes here, the point is that the monetary "restraint" was followed by back-to-back recessions during the first half of 1980 and from mid-1981 through 1982. Adjustment and hardship, it turned out, were not avoidable. And more is almost sure to come. As this is being written, the Government's deficit problem has yet to be solved. U.S. banks are holding huge amounts of uncollectible loans to farmers, the petroleum industry, and Latin American borrowers. U.S. quasi-government deposit-insuring and loan-guaranteeing institutions — for example, the Federal Savings and Loan Insurance Corporation — are having to be rescued by various devices. Most of these simply mask the underlying problems rather than solve them. The price for the ongoing U.S. experiment with a paper dollar has not been paid in full.

Yet, the large drop in the purchasing power of gold since 1980 (evident in Chart 2) indicates that substantial public confidence in the paper dollar and in government policies toward production of new wealth has been restored. Nevertheless, the buying power of gold at the end of 1985 still was somewhat above the upper bound of its long-term range. This suggested that public confidence and trust remained tenuous. A paper-money system warrants that doubt.

GOING BACK TO MOVE AHEAD

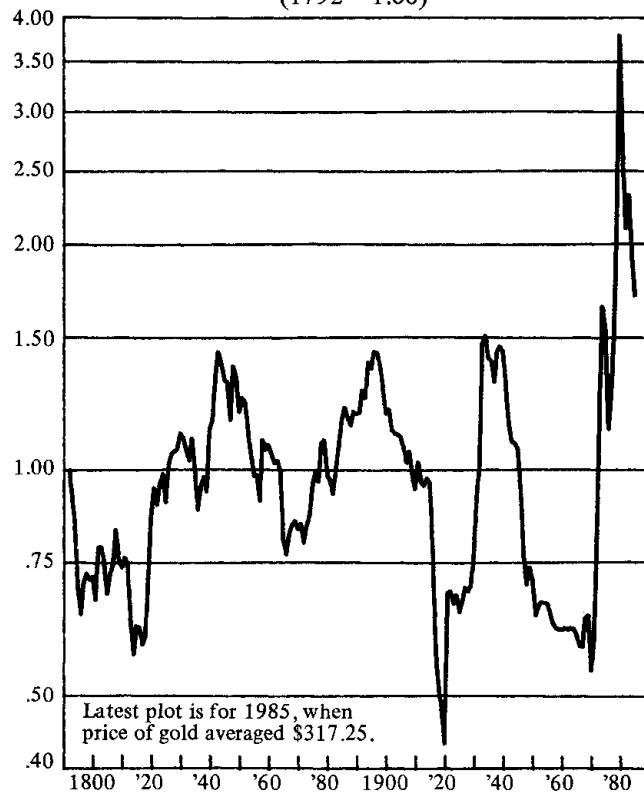
On December 17, 1985, President Reagan signed legislation that authorizes the U.S. Treasury to mint and issue legal-tender gold coins (not medallions) for the first time in more than half a century. The legislation prohibits their sale before October 1, 1986. Gold coins are to be issued in denominations of \$5, \$10, \$25, and \$50 and are to contain one-tenth, one-quarter, one-half, and one troy ounce of fine gold, respectively. (The gold content of the \$10 coin is *not* in the same proportion to the face amount as in the other coins.) The coins will have legal-tender status only for their face amounts rather than their bullion values.

That the new coins will carry paper-dollar face amounts may tend to convey the erroneous impres-

sion that gold values fluctuate substantially against a more stable fiat unit (the dollar). But as Charts 1 and 2 suggest, over time the fluctuating fiat-dollar market prices for gold coins reflect fluctuating values for the paper dollar around a more stable gold unit. For gold to regain public recognition as the preferred unit of value (the unit in which prices of other things are quoted), it would have been far more preferable if the new coins were not burdened with face values in terms of a fiat unit. A more accurate view of the relative usefulness of gold vis-a-vis the dollar as a monetary unit, and thus of the unreliability of fiat monetary units, would be gained if the coins had no dollar face values.

The Gold Bullion Coin Act of 1985 is far from perfect. Nevertheless, for the first time in over 50 years there will be new U.S. gold coins. To the extent that their availability increases public use of gold coins as a store of value, the new law may promote gold as the chief competitor to the fiat dollar as the people's monetary unit. The introduction of gold coins as an alternative to government-controlled paper dollars could be an important first step back toward what a dollar was — a long-term reliable unit of value, a weight of gold.

Chart 2
PURCHASING POWER OF GOLD
(1792 = 1.00)



Note: The changes in purchasing power shown in the chart were calculated from annual averages of the Wholesale Price Index (Source: U.S. Department of Labor) and the annual averages of the exchange ratio of dollars for gold.

II.

THE SUPPLY OF MONEY AND PURCHASING MEDIA IN USE

PRомises to pay money at some future date probably have been made for nearly as long as money has been used for effecting exchanges.¹ In the United States, economic growth and the stability of political and legal institutions have fostered a tremendous increase in financial assets and liabilities calling for payment in the monetary unit, the dollar. As Table 2 reveals, reported dollar claims in the United States recently totaled about \$10.5 trillion. In addition, there now are hundreds of millions of "Eurodollar" and other dollar claims among foreigners. Although all of these claims ultimately call for payment in dollars, only a small fraction serve as purchasing media, that is, as claims generally used domestically in final payment (to third parties) of purchases and debts.

Never has the gross amount of outstanding dollar claims determined the purchasing power of a dollar. The portion of gross dollar claims *used specifically as purchasing media* is the pertinent figure. Only purchasing media are generally used to bid for and buy things in the market and, therefore, only purchasing media can chronically disrupt the dynamic balance between claims on things offered in the markets and the value of the things in the markets to be claimed.

An illustration might clarify the difference between claims that are generally used for making final payments, purchasing media, and claims that are not. If you, the reader, were to write an IOU (which would be a claim against you when held by someone else) and then went to buy something with it, you probably would not find many sellers willing to take your IOU in payment. However, if you went to a bank and gave the bank your IOU (that is, you signed a promissory note), the bank could credit your checking account balance (effectively writing its IOU) and you generally would be able to use the bank's IOU for making a purchase (or paying a debt). The origination of your own IOU could not add to purchasing media (because, again, it is not generally accepted as means of final payment), but the bank's origination of its IOU

could. (See Appendix A for our explanation of why some financial claims are or are not classified as purchasing media, and see Appendix B for a description of how the banking system creates purchasing media.)

MEASUREMENT PROBLEMS

As mentioned in the preceding chapter, U.S. monetary policy has stated ultimate macroeconomic (overall economy) objectives.² They include the promotion of sustainably rapid output, employment, and income growth; the moderation of business cycles; the prevention of prolonged price inflation or deflation; the preservation of the banking system from collapse; and the promotion of international transactions and payments balance.³ However, monetary officials (the Fed) cannot quickly and directly effect those objectives.⁴ Rather, they use some other series as intermediate guides, or targets, for their ultimate objectives.

² The school of economic thought called "rational expectations," rapidly developed especially during the late 1970's, raised new and serious doubts about the possible effectiveness of public policies designed to achieve macroeconomic outcomes different from those the private sector would produce through markets. Even if officials had pure public-interest motives — that is, they truly tried to act in the public's interest rather than their private interest — there is no basis for their knowing the public's set of macroeconomic choices.

³ See semiannual Monetary Policy Reports to Congress and records of Federal Open Market Committee meetings for statements revealing the Fed's macroeconomic objectives at various times and during different economic conditions. For example, the Open Market Committee's directive from its meeting of November 4-5, 1985 declares, "The Federal Open Market Committee seeks to foster monetary and financial conditions that will help to reduce inflation further, promote growth in output on a sustainable basis, and contribute to an improved pattern of international transactions."

⁴ The "Fed" is short for the Federal Reserve System, which was created by the Federal Reserve Act passed December 23, 1913 and since amended many times. By that Act, Congress delegated to the Fed the authority to determine U.S. monetary policy, which authority is granted to Congress by the Constitution. See any introductory economics or money and banking college textbook for a description of the way the Fed is organized — with 12 separate Federal Reserve banks and a Board of Governors of the system. Some critics of the Fed assert that its creation was the product of a big-bankers' conspiracy to gain direct control of U.S. monetary actions for their personal private advantage. For a discussion of this topic, see our booklet "America's Unknown Enemy: Beyond Conspiracy" (price, \$8).

¹ Here "money" refers to things (claims to commodities or claims to fiat liabilities) generally used in final payment of purchases and debts. This is the "narrow" definition of money, also known as "transactions money." Because there are other "money" definitions and series (see Table 3), we long have used the name "purchasing media" for the narrow series, in order to minimize possible misunderstanding.

These have included primarily nominal interest rates, and money and credit series, among lesser others.⁵

The Fed has given more or less attention to one or more of its ultimate objectives depending on its perception of the most pressing problem of the time. So, too, has the primary focus of economic theory changed with the perceived more serious problems of the time. Economic theory provides the intellectual rationale for the Fed's use of intermediate monetary targets and guidelines.

After the Great Depression and World War II, monetary policy was directed largely toward keeping nominal interest rates low in order to spur borrowing and spending, which Keynesian theory (developed in response to the depression of the 1930's) said could virtually ensure perpetual prosperity. Low interest rate targets, however, involved excess "money" creation (inflating). In time this led to accelerating price inflation, to heightened inflationary fears, to the discouragement of saving, to creditors' demands for higher nominal interest rates to compensate for the dollar's loss of purchasing power, and to an incipient flight from the dollar, among other things.

Once inflationary fears were ignited, creditors demanded higher nominal interest rates as an inflation premium because they wanted to be compensated for the expected loss of buying power of the dollars they would get back when the principal was repaid. At that point, the Fed could not tell if observed increases in interest rates were "real" or were due to a higher inflation premium. If they were "real," they might decline under an "easy

⁵ The Fed cannot directly control even these intermediate targets. See Appendix B, "But What Can the Fed Actually Control?" subsection.

Table 2
DOLLAR CLAIMS IN THE UNITED STATES
December 31, 1984

| Type | Billions |
|---------------------------|-----------------|
| Currency | \$ 160 |
| Checkable deposits | 423 |
| Time & savings deposits | 2,140 |
| Consumer credit | 577 |
| Trade credit | 548 |
| Security credit | 82 |
| Home mortgages | 1,324 |
| Other mortgages | 681 |
| Other bank loans | 643 |
| Open market paper | 307 |
| U.S. & agency securities | 1,902 |
| Tax-exempt securities | 547 |
| Corporate & foreign bonds | 653 |
| Other loans | 480 |
| | \$10,467 |

Note: Compiled from Federal Reserve Board Flow of Funds tables.

"money" policy. But if they reflected a higher inflationary premium, they would rise even more if monetary policy were eased further and that worsened inflationary fears. Interest rates, therefore, became ambiguous as a guide for monetary policy.

On October 6, 1979, Fed officials declared they subsequently would use growth rates of monetary aggregates as their primary guide for monetary policy; interest rates would receive less attention.⁶ It is somewhat ironic that just about the time when money-supply series were adopted as the primary guide for policy, controversy became heated about the fundamental issue of what constitutes "the money stock." This heated controversy continues at this time. Indeed, as time has passed, more questions about what now is used as money have been raised than settled.⁷

The officially reported money-stock series (monetary aggregates) M1, M2, and M3 are presented in Table 3, together with the official credit aggregate, L. M1 is used by most analysts as the closest approximation of transactions money, or purchasing media. But many analysts use others of the Ms, and their studies refer to the series simply as "money," misleading many readers. The higher aggregates are included in Table 3 for the reader's reference only. We are not convinced that the particular combinations constituting each higher aggregate are significant to inflating, aside perhaps from increases in them being encouraged by inflating.

The M1 version of purported transactions money shown in Table 3 is the most recent of many versions. As new types of payments media came into widespread use over the past 10 to 15 years, the components of the official transactions-money series were changed. Perforce, such changes in the official series could be made only after the "new" payments media had been in use long enough and widely enough to meet the criteria of narrow money. Appropriate revisions to the official narrow-money series then were made in the earlier-reported official series. Each major change in the

⁶ Although the Fed announced minimum and maximum "target" growth rates for various monetary series (M1, M2, M3), the Fed did not view the targets as absolute limits. (Thus the policy did not conform to the strict Monetarist prescription.) This is evident from subsequent Open Market Committee reports. But it also was plainly stated at the time. See pertinent "Statements to Congress," *Federal Reserve Bulletin*, November and December 1979.

⁷ We and some others doubted the usefulness of reported monetary series much earlier; see "How Much Money Is There?", *Research Reports*, September 20, 1976. In October 1982, the Fed announced it would deemphasize M1 changes as a guide for policy during the immediate future because of unusual influences on M1; see "Has the Fed Done It Again?", *Research Reports*, November 1, 1982 and "Remarks on Monetary Policy," *Federal Reserve Bulletin*, November 1982, pp. 691-692.

Table 3
OFFICIAL MONETARY AND CREDIT AGGREGATES
FOR DECEMBER 1985
(Not Seasonally Adjusted)

| <i>Monetary Aggregate and Components</i> | <i>Billions</i> |
|---|-------------------|
| M1:¹ | \$ 639.6 |
| Currency outside banks | 173.1 |
| Traveler's checks | 5.5 |
| Demand deposits | 281.1 |
| Other checkable deposits (OCDs) | 179.9 |
| M2:² | \$2,572.2 |
| M1 | 639.6 |
| Overnight repurchase agreements (RP _s) | 51.8 |
| Overnight Eurodollars | 16.7 |
| Money market mutual fund (MMMF) balances | 175.8 |
| Money market deposit account (MMDA) balances | 512.1 |
| Savings deposits at all depository institutions | 301.8 |
| Small-denomination time deposits at all depository institutions | 882.8 |
| <i>Less: Consolidation Adjustment</i> | -8.4 |
| M3:³ | \$3,203.5 |
| M2 | 2,572.2 |
| Large-denomination time deposits at all depository institutions | 438.3 |
| Term RP _s : | |
| Issued by commercial banks | 31.4 |
| Issued by thrift institutions | 27.7 |
| Term Eurodollars | 76.4 |
| Institution-only MMMF balances | 64.5 |
| <i>Less: Consolidation Adjustment</i> | -7.0 |
| L:⁴ | \$3,796.5* |
| M3 | 3,178.9 |
| Other liquid assets: | |
| Savings bonds | 79.0 |
| Short-term Treasury securities | 296.0 |
| Bankers' acceptances | 43.3 |
| Commercial paper | 199.1 |

¹ The components of the M1 money stock measure are: currency outside the U.S. Treasury, Federal Reserve banks, and the vaults of commercial banks (excluding the estimated amount of vault cash held by thrift institutions to service their OCD liabilities); outstanding amount of U.S. dollar-denominated traveler's checks of nonbank issuers (traveler's checks issued by depository institutions are included in demand deposits); demand deposits at commercial banks other than those due to domestic banks, the U.S. Government, and foreign banks and official institutions, less cash items in the process of collection, Federal Reserve float, and the estimated amount of demand deposits held by commercial banks and thrift institutions to service their OCD liabilities; and OCDs, which consist of negotiable orders of withdrawal (NOW) and automatic transfer service (ATS) accounts at depository institutions, credit union share draft accounts, and demand deposits at thrift institutions.

² In addition to M1, the following components comprise the M2 money stock measure: overnight RP_s (and continuing contract RP_s) issued by commercial banks to other than depository institutions and MMMFs (general purpose and broker/dealer); overnight Eurodollars issued by foreign branches of U.S. banks worldwide to U.S. residents other than depository institutions and MMMFs (general purpose or broker/dealer); MMMF balances, general purpose and broker/dealer; MMDAs; savings deposits, excluding MMDAs; and small time deposits, including retail RP_s, issued in amounts of less than \$100,000. (All individual retirement accounts [IRAs] and Keogh accounts at commercial banks and thrift institutions are subtracted from small time deposits. Also subtracted is the estimated amount of demand deposits and vault cash held by thrift institutions to service their time and savings deposit liabilities.)

³ The M3 money stock measure includes M2 plus: large time deposits, those issued in amounts of \$100,000 or more, excluding those booked at international banking facilities (IBFS); term RP_s, with original maturities greater than 1 day, excluding continuing contracts and retail RP_s; term Eurodollars, with original maturities of greater than 1 day, including those issued to U.S. residents by foreign branches of U.S. banks worldwide and by all banking offices in the United Kingdom and Canada, excluding those held by depository institutions and MMMFs; and institution-only MMMF balances. (The M3 measure is adjusted by the subtraction of the estimated amount of overnight RP_s and Eurodollars held by institution-only MMMFs.)

⁴ The additional components of L, not included in M3, are: savings bonds; short-term Treasury securities, consisting of U.S. Treasury bills and coupons with remaining maturities of less than 12 months held by other than depository institutions, Federal Reserve banks, MMMFs, and foreign entities; bankers' acceptances, net of bankers' acceptances held by accepting banks, Federal Reserve banks, foreign official institutions, the Federal Home Loan Bank System, and MMMFs; and commercial paper less than held by MMMFs.

* L and its components are for November 1985.

composition of narrow money then resulted in a re-write of narrow-money history.

A great deal of monetary theory rests on statistical tests relating changes in the "money supply" to other macroeconomic series, such as the current-dollar amount of the Nation's final output of goods and services (Gross National Product) or to broad measures of prices ("inflation"). With the official narrow-money series undergoing repeated historical revisions, statistical tests of monetary relationships performed successively thereafter reflect a then-current account of the historical monetary series, not the account of the series contemporaneous to the developments themselves. Consequently, such tests can, and almost surely do, give erroneous impressions of narrow-money relationships.

One important relationship supported by results of statistical tests is that trend changes in the rate of growth of narrow money are followed, with a lag of about 1 to 2 years, by trend changes (in the same direction and of roughly proportional magnitude) in current-dollar GNP. A current test of that relationship would use the currently available M1 series, incorporating all the revisions made over the years. Chart 3, panels A and B, shows that the patterns of change in, and the variability of, the current M1 series (shown as the solid line) are sometimes substantially different from those of the narrow-money series reported at the time (shown as the dashed line). For example, the currently available M1 series trends slightly upward from early 1970 through 1972, but the then-available narrow-money series trended downward from early 1970 through

1971 (Panel A). The fluctuations also are much greater for the contemporaneous series than for the "hindsight" series. Panel B reveals that contemporaneously available narrow-money data indicate there was a sharp drop in its rate of growth in late 1978-early 1979, but this drop was virtually eliminated in the later series. And in late 1980, when the growth rate of the contemporaneous series was near zero, the current M1 series indicates growth of about 5 percent. With so many modifications of the narrow-money series, revisions to the historical series, and possibilities of lag estimates, it should not be surprising that analysts can perform statistical tests showing an empirical relationship between changes in "money" and nominal GNP.

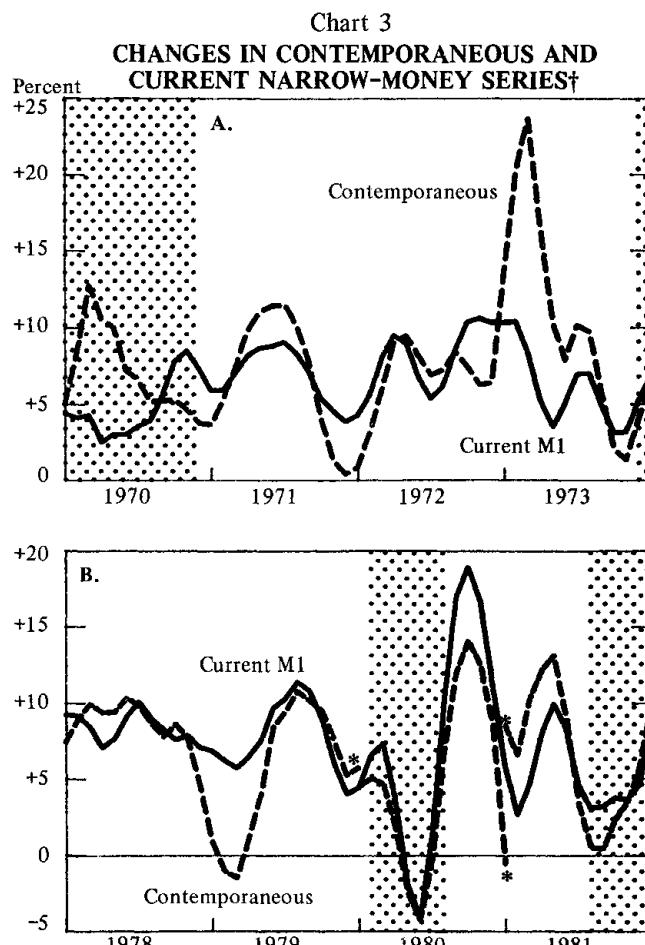
ISSUERS AND USERS

We long have doubted that the official narrow-money series has accurately represented purchasing media in use. In large part the deficiency relates to the fact that the official data are collected from *issuers* of purchasing media — private banking institutions, the Fed, and the U.S. Treasury. It does not follow that the total of such media outstanding is always fully in use in the United States. For example, much U.S. currency probably is hoarded for store-of-value purposes in this country (acquired by illicit means or hidden from tax collectors) and in other countries. Also, large if unknown amounts of U.S. currency are known to circulate (in white and black markets) in many parts of the world. *Newsweek* (March 10, 1986, p. 58) reported that an estimated \$3 billion to \$5 billion in U.S. currency may be circulating in Argentina alone. In every "hot spot" of the world U.S. currency seems to "crawl out of the woodwork" for use in buying essentials, including escape from political enemies as in Cambodia and Vietnam.

During World War II, we adjusted the reported money supply figures for an estimated amount thought to be hoarded. The hoarding estimate was based primarily on evidence that wartime demand-deposit turnover rates were much lower than pre-war turnover rates.⁸ This implied that holders of demand-deposit balances were keeping some balances idle and thus out of use. After the war, turnover rates gradually increased, and we gradually reduced the estimated amount hoarded, until it be-

came zero in the early 1960's. Thus, from the end of the war until the early 1960's, our purchasing media in use series rose more rapidly than the official money stock.

More recently, our estimate of inactive purchasing media has reflected obsolete currency issues (including silver coins) plus U.S. currency outstanding in bills of \$100 and more not held by U.S. banks. Although some such bills no doubt are in use in the U.S. reported economy, by their sheer amount (\$78 billion in September 1985, or about \$900 per household) and their low evidence in use in the above-ground U.S. economy, it seems warranted to presume that most of that amount is not in use in the United States. Furthermore, while some of the \$100 and larger bills probably are in use in the United States, the resulting understate-



† Three-month percent change, at annual rate, in 3-month averages; seasonally adjusted data.

* Break in series during 1980 is for period when "narrow money" was the series that in 1981 was designated M1-A, before being discontinued in favor of M1-B.

Note: Current series is official M1 series available in early 1986. Revised historical data have been announced but are not available at this writing. Contemporaneous series is narrow-money series, variously called M1, M1-A, and M1-B, reported in *Economic Report of the President*. Data for 1970 are from 1971 Report, 1971 data from 1972 Report, and so on. Shaded areas represent periods of economic recessions.

⁸ The turnover rate of a monetary item is the amount of payments effected with that item during a period divided by the average amount of that item outstanding during the period. For example, the turnover rate of checkable deposits is calculated as the total amount of debits to such accounts during a month (at an annual rate) divided by the average total amount of checkable deposits during that month. "Transactions velocity" and "turnover rate" are used interchangeably.

Table 4
**RELATION BETWEEN OFFICIAL M1
 AND PURCHASING MEDIA IN USE
 DECEMBER 1985**

(Billions of Dollars, Not Seasonally Adjusted)

| | |
|---|----------------|
| Official M1 (see Table 3) | \$639.6 |
| <i>Add:</i> | |
| Overnight repurchase agreements (RP) ¹ | 51.8 |
| Overnight Eurodollars ² | <u>16.7</u> |
| | \$708.1 |
| <i>Deduct:</i> | |
| Two-thirds other checkable deposits (OCDs) ³ | 119.9 |
| Inactive purchasing media ³ | <u>73.1</u> |
| Purchasing Media in Use | \$515.1 |

¹ Includes overnight and continuing contract RP issued by commercial banks to other than depository institutions and money market mutual funds (general purpose and broker/dealer). See note 2 to Table 3.

² Issued by foreign branches of U.S. banks worldwide to U.S. residents other than depository institutions and money market mutual funds (general purpose and broker/dealer).

³ See text for rationale for this adjustment.

ment probably is totally offset, and perhaps more than offset, by usage of smaller bills outside the U.S. reported economy.

New evidence regarding usage of currency (and other transactions media) by U.S. households was gained from a 1984 Fed "Survey of Currency and Transactions Accounts Usage," the results of which were summarized in the February 1986 *Federal Reserve Bulletin*. As a proportion of the reported amount of U.S. currency outstanding at the time of the survey, only 11 to 12 percent could be inferred as in use by American adults. The authors then speculated that neither children nor business enterprises are likely to use as much cash as the

adult population. But even if they did, that would account for only 33 to 36 percent of the total reported currency outstanding, leaving 64 to 67 percent, according to the authors, "held either in hoards, 'underground,' or offshore and thus for purposes not directly related to measured domestic economic activity." Our estimate of inactive purchasing media recently has equaled about 45 percent of outstanding currency. In light of the new evidence, that amount may be too small.

The dearth of data about how holders of monetary items actually use them has become more troubling since the late 1970's and early 1980's, when new types of checkable accounts came into use. The new payments techniques and other changes were taken into account in the official series and in our estimate of purchasing media in use. While the official M1 series has included all OCDs (checkable deposits other than demand deposits at commercial banks), we have included only one-third of the reported balances. Because OCDs paid interest close to the rates available on some savings accounts and short-term savings instruments, it seemed reasonable that OCD holders would maintain both purchasing media balances and some savings balances within OCDs. Comparative turnover rates for NOW accounts in New England in the late 1970's were about one-third of those estimated for household demand deposits.⁹

⁹ Two-thirds proportion based on comparative turnover rates (annualized) of NOW accounts in the late 1970's (about seven to eight times) and of household demand deposits in the early 1970's (estimated at 18 to 30 times).

Chart 4
PURCHASING MEDIA BY SOURCE
 (Seasonally Adjusted)

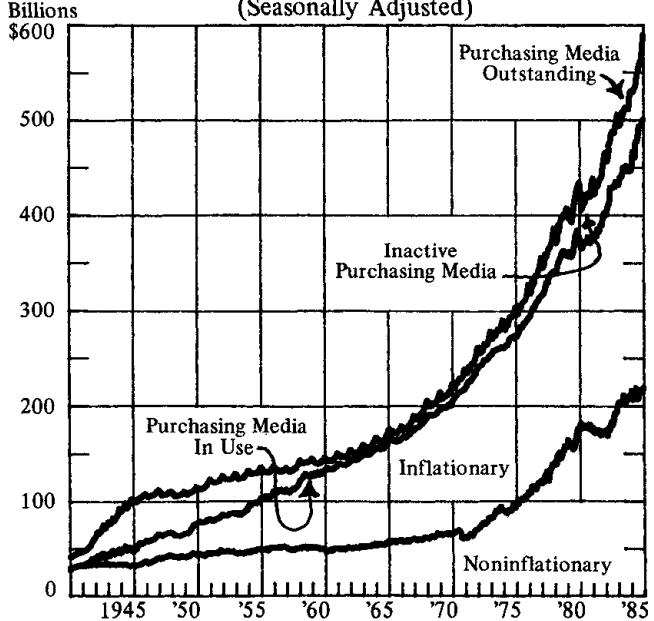
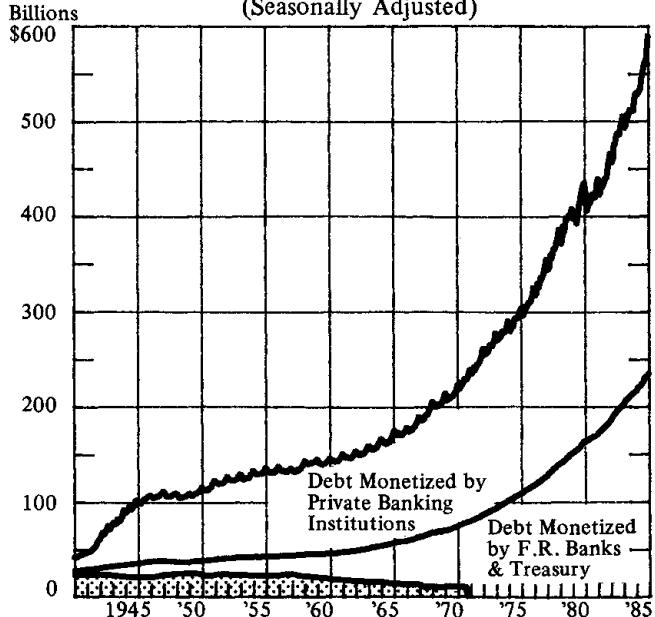
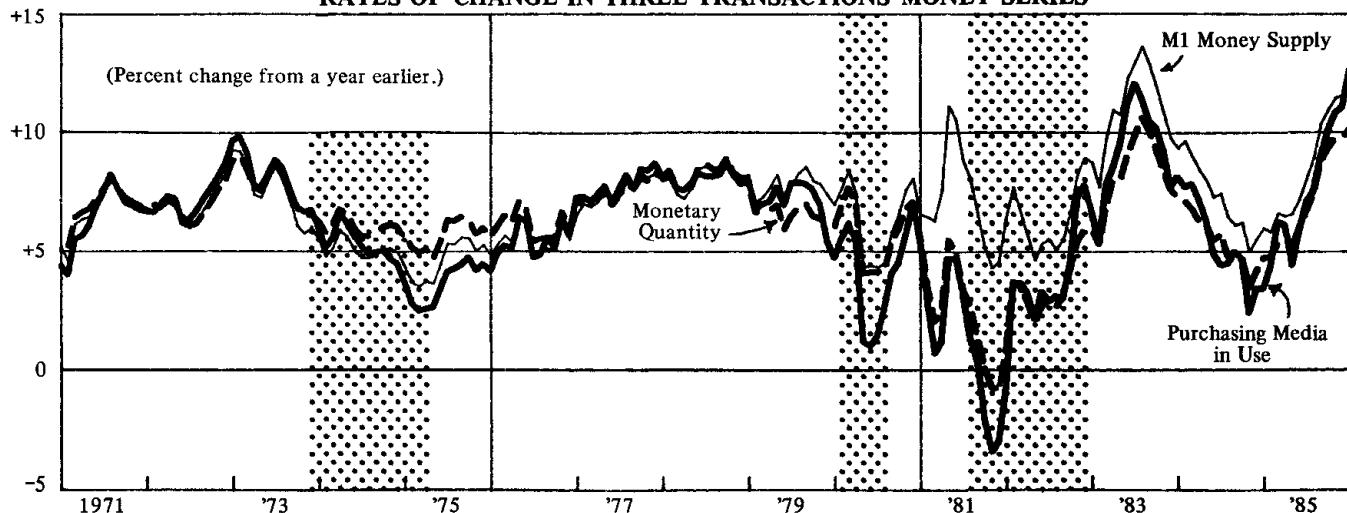


Chart 5
PURCHASING MEDIA BY ORIGINATOR
 (Seasonally Adjusted)



Note: Shaded area is official stock of monetary gold, valued at \$35 per ounce.

Chart 6
RATES OF CHANGE IN THREE TRANSACTIONS-MONEY SERIES



Note: Series are not seasonally adjusted. Shaded areas are recession periods.

This suggested to us that about two-thirds of OCDs were saved purchasing media and should be subtracted from reported M1 to arrive at a figure for purchasing media in use. Little additional information has become available to shed more light on this matter. Insofar as they applied to the turnover rate of OCDs, the Fed's transactions-account survey results mentioned above support our earlier estimate. They indicate that OCDs have a turnover rate "less than one-half that of the main [household] checking account."¹⁰

In addition to new types of checkable accounts, banks began to offer overnight repurchase agreements (RPs) and overnight Eurodollar deposits during the 1970's. (See Appendix A for more about RPs and Eurodollars.) These enabled business firms (and households) with large demand deposit balances (which pay no interest) to reduce such balances at the end of each business day to zero, to earn interest overnight on those amounts, and to regain the use of those balances for making payments the next business day. Reported demand deposit balances, therefore, understate purchasing media available for use by the amount of the overnight RPs and Eurodollars. We, therefore, add these amounts to reported M1 in estimating the supply of purchasing media (Table 4).

The adjustments we have made to M1 to arrive at our purchasing-media-in-use series have seemed reasonable. Yet, because of the lack of much infor-

¹⁰ "The Use of Cash and Transactions Accounts by American Families," *Federal Reserve Bulletin*, February 1986, p. 92.

mation about holders' uses of monetary items, we harbor some doubt about the accuracy of our series. Indeed, we consider it an *estimate* of the purchasing media series that is economically significant, not an actual "measure" of it.

In spite of repeated reformulations of the official M1 series, the Fed has continued to express doubts about the accuracy of its M1 as a measure of transactions money. Researchers on the staff of the Fed's Board of Governors have developed some "experimental" measures of transactions money. One, called the Fisher Monetary Quantity Index, has a great deal of promise. Its promise, in our view, lies not so much in its present accuracy as a measure of change in transactions money but rather in its potential for changing the practice for collecting official monetary statistics (reorienting it toward users) and in its broader implications for monetary theory. More discussion about the Monetary Quantity (MQ) series is presented in the next chapter. For purposes here, we simply report that changes in the MQ series tracked quite closely changes in our purchasing media in use series. This is especially noteworthy for the period 1980 through 1982, when both deviated substantially from the official M1 series (see Chart 6).

Alone, neither the amount of transactions-money outstanding nor rates of changes in the amount reveal if the amount or change is "too much" or "too little." "Too much" or "too little" is determined by the relationship between supply and demand. Demand for "money" is the topic of the next chapter.

III.

THE DEMAND FOR MONEY AND PURCHASING MEDIA

FOR every unit of purchasing media (transactions money) supplied, there is a unit held, just as for every unit of debt outstanding, there is a unit of credit. Thus, after the fact (or, *ex post*) the quantity of transactions money demanded always equals the quantity of transactions money supplied. But the *planned* (*ex ante*) quantity of transactions money demanded need not equal the *ex post* quantity demanded (or supplied). The *ex ante*, or planned, quantity demanded often is called the "real demand" for money.

The process by which the nominal supply of transactions money affects the goods sector of the economy is called "the transmission mechanism" in monetary literature. In general, the transmission mechanism is conjectured to have these aspects: Economic agents (persons or other economic units) demand some *real* quantity of transactions money, which demand is related to many, many factors. Among them are current and expected real income, current and expected wealth, current and expected price inflation, the current and expected pattern of interest rates and rates of return on alternative investments, current and expected tax policies, perceptions of political and social stability, and then some. If the quantity of *nominal* transactions money supplied is greater than the *real* quantity demanded, economic agents will conclude they have too much transactions money in relation to their purchases of current-consumption goods and holdings of future-consumption goods (store-of-value goods or financial assets). To reach these desired relative holdings, economic agents will buy more goods and services for current consumption or buy more financial assets as a store of value for future consumption. Purchases of more goods and services are reflected in higher sales, which will spur more orders, output, employment, and income. Purchases of financial assets tend to reduce interest rates and other rates of return on investments, which tend to spur borrowing and purchases of goods and services as above. Depending on the availability of resource inputs (including the skills and attitudes of the labor force) and output capacity, and depending on the duration of the excess supply of nominal transactions money, the additional purchases might stimulate a higher level of prices (price inflation) instead of a higher level of real output and income.

The "equation of exchange" is a summary ex-

pression of the "money side" and the "nonmoney-goods side" of total spending within an economy during a period. The equation is $M \times V = P \times T$, where M is the average stock of transactions money outstanding during a period, V is the rate of turnover of that stock during the same period, P is the average of all prices of items exchanged during a period, and T is the physical volume of all transactions effected during the period. The product of $P \times T$ is the money value of all transactions made during a period. In this form, the expression $MV \equiv PT$ is an identity, not an equation, because the two sides of the expression refer to one quantity — namely, the value expressed in monetary units of all transactions effected during a period by the exchange of transactions money. This "identity" relationship is similar to that between the total amount of debt incurred and of credit extended during a period; they are the two sides to one type of exchange, with only one quantity.

This identity of exchange became the foundation of the 20th century "quantity theory of money," which more recently has had the name "Monetarism." Quantity theorists transformed the identity of exchange into an equation of exchange by hypothesizing that V and T were determined by nonmoney factors, leaving M and P related. M , in turn, was hypothesized to be "exogenously" determined — that is, determinable by monetary authorities rather than determined by market participants on the basis of nonmoney factors. The price level (P), then, was hypothesized to be determined by the money supply (M).

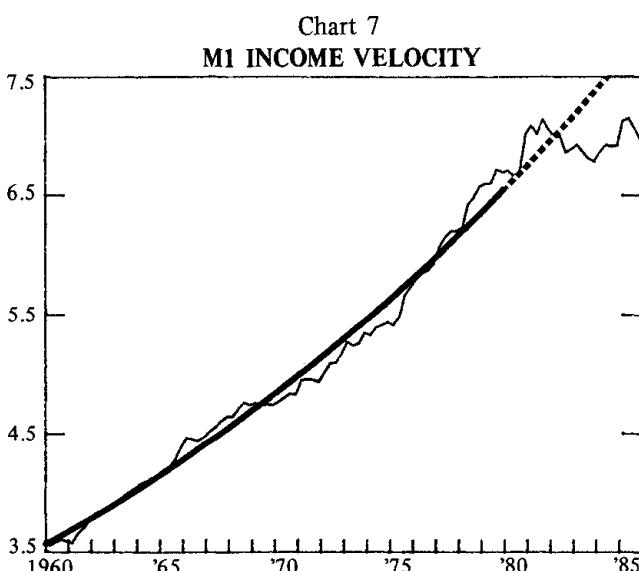
When empirical studies were undertaken in the 1960's and 1970's to test the modern quantity-theory hypotheses, the PT side of the equation was taken to be nominal GNP, or the money value in current dollars of all *final* goods and services produced in the Nation during a period. Broken down, P was taken as a particular price index, specifically the GNP price deflator, and T was taken as the price-adjusted, or constant-dollar, GNP. Velocity (V) then became the *income* velocity of money, the ratio of nominal GNP to "the money supply." These redesignations of V , P , and T were "necessitated" by the unavailability of data for, in the case of P and T , the individual prices and physical quantities of *all* transactions effected with dollar purchasing media. The PT used in empirical studies thus was an aggregation of a small subset of all PT s.

No independent measure of V appropriate to this subset of PTs was available either.

Empirical studies done by modern quantity theorists, the Monetarists, supported the view that the income velocity of money was reasonably predictable over intermediate-term and longer-term spans. Monetarists did not and do not assert that income velocity is stable or even that its rate of change is more or less steady. Rather, their theory hypothesizes that the factors determining income velocity and the direction and magnitude of their effects on velocity were more or less stable.¹

Be that as it may, their empirical studies in fact indicated there was a more or less steady rate of increase in income velocity over spans of more than a business cycle. This supported the Monetarists' policy prescription of seeking to foster a steady rate of increase in some fiat-money series in the long run in order to prevent monetary changes from aggravating the expansionary and contractionary phases of business cycles. And as mentioned in the preceding chapters, Monetarism provided the intellectual rationale for the October 1979 change in the Fed's intermediate policy target from primarily nominal interest rates to growth rates of monetary series.

¹ Some of these are: society's patterns of receipts and payments, new financial assets that enable holders to conserve on transactions-money holdings or to earn interest on such holdings, the current and expected price level, current and expected real interest rates, and current and expected real income. See Daniel L. Thornton, "Why Does Velocity Matter?", *Review*, Federal Reserve Bank of St. Louis, December 1983, for a succinct description of the importance of velocity.



Note: M1 income velocity is current-dollar GNP for a quarter (annual rate) divided by the average monthly M1 for the quarter 6 months earlier. Trend taken from velocities for I/1960 through IV/1979.

Shortly thereafter, however, the M1 income velocity diverged sharply from its longer-term pattern (see Chart 7). Since the divergence became apparent, Monetarists have "explained" the divergence in ways consistent with their general views. In particular, they have asserted that such things as the 1980 and 1981-82 recessions, innovations in financial assets, reduced inflationary fears, and other temporary or possibly one-time shifts in the demand for money account for the income-velocity change.² Writing in September 1983, Milton Friedman, the father of modern Monetarism, gave such an explanation tied primarily to business-cycle conditions and asserted that the factors would reverse as the then-fledgling recovery would continue. He then concluded that "excessive monetary growth over the past year means that we are facing the near-certainty of an overheated economy for the next few quarters at least, which will certainly mean a subsequent acceleration of inflation, probably in middle or late 1984."³

As Chart 7 shows, M1 income velocity did rise during 1984 and the first half of 1985, before subsequently falling again. But the more rapid price inflation Milton Friedman predicted did not develop. New Monetarist "explanations" can be found for those predictive failures, and given enough time and revisions of M1 (see Chapter II), the M1 income velocity calculated in the future for the 1980-84 period may look quite different from that in Chart 7. But these explanations and revisions are after the fact. Critics of Monetarism assert, with some justification in our view, that had the Monetarists' policy prescription been tightly adhered to during 1982-85, the U.S. economy might have plunged into a major depression.

SOURCES OF DEMAND

The divergence of M1 income velocity from its historical trend, and questions about the accuracy of M1 as a measure of transactions money (see Chapter II), are related. By "appropriate" changes in the transactions-money series (now M1), the M1 income velocity could be made to "behave" as expected.

The research staff of the Board of Governors of the Federal Reserve System has been experimenting with new measures of purported transactions

² For examples, see John A. Tatom, "Was the 1982 Velocity Decline Unusual?", *Review*, Federal Reserve Bank of St. Louis, August/September 1983; John P. Judd, "The Recent Decline in Velocity: Instability of Money Demand or Inflation?", *Economic Review*, Federal Reserve Bank of San Francisco, Spring 1983; and Milton Friedman, "Why a Surge of Inflation is Likely Next Year," *The Wall Street Journal*, September 1, 1983.

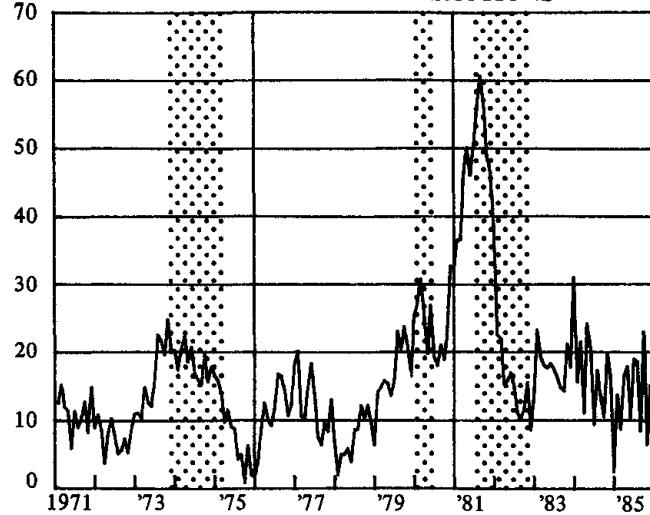
³ See footnote 2.

money. One of these is called the Fisher Monetary Quantity Index (MQ). It has been described by Paul A. Spindt of the Fed's research staff.⁴ Spindt points out that the money stock series (reported M1) used for calculating the income velocity of money is not the appropriate series. He points out that M1 is used for effecting more transactions than those reflected in nominal GNP, which is an estimate of *final* output only. There also are transactions involving intermediate goods, raw materials, existing real assets, and financial assets. Moreover, he points out, not all forms of purchasing media — say, currency compared with demand deposits (see Table 3) — are used with equal frequency. Thus it is possible that the volume of payments a given total M1 might "support" could vary substantially depending on the proportions of the individual components of M1 and the speed at which those components "turnover." Spindt's approach thus directly addresses the issue of how *holders* of purchasing media actually use them — the speed of usage and the purposes for which they are used (for final goods, intermediate goods, financial assets, etc.).

This new approach thus explicitly recognizes: (1) that there is not one "money" supply, but rather a number of distinct forms of transactions media that are used to make the total flow of payments during a period (the MV side of the identity of exchange), and (2) that there are a number of sources of demand for "money," related to the various types of things paid for during a period (the PT side of the identity of exchange). This is enormously significant for at least two reasons. (1) At the practical level of measuring the money supply, it implies that the present official practice of collecting data from money issuers and ignoring the payments activities of money holders is totally inadequate. (2) At the theoretical level, it implies that empirical studies relating changes in the reported narrow-money supply to changes in domestic nominal output of final goods and services (GNP) are extremely weak at their foundation.

In making the obvious, albeit virtually ignored, point that some of the "money supply" is used for making payments for things *not* included in nominal GNP — financial-asset transactions, for example — Spindt's work raises the possibility that the proportion of the total "money supply" devoted to, say, financial transactions might vary considerably, causing the proportion available for effecting GNP-type transactions to vary considerably even though the total "money supply" might change at a steady

Chart 8
ESTIMATED DEMAND DEPOSIT TURNOVER RATE FOR FINANCIAL TRANSACTIONS



Note: AIER calculation from data derived by Paul A. Spindt, research staff of the Board of Governors of the Federal Reserve System.

rate.⁵ The Monetarists' policy prescription of a steady-rate-of-growth of "money" as a means of fostering steady nominal GNP growth would lack a foundation.

We cannot here describe Spindt's approach and his technique for estimating the MQ series. Because of the dearth of relevant data, however, Spindt admits that his MQ is questionable. (The collection of more relevant monetary data by the authorities would help cure that problem.) This applies particularly to his estimates of the turnover of "money" in connection with financial transactions.⁶ For the demand-deposit component of transactions money, financial-transactions usage is calculated as a residual, a remainder. It is what is left after the demand-deposit estimated turnover rates for other types of transactions (primarily output transactions) are subtracted from the gross turnover rate for demand deposits. Be that as it may, the 12-month rate of change in the demand-deposit turnover rate for financial transactions is plotted in Chart 8. It does

⁵ Spindt's approach focuses only on *domestic* sources of supply of and demand for transactions money denominated in dollars. A body of economic studies dealing with "currency substitution," or changing uses of foreign monetary claims, suggests that a domestic focus is fatally flawed. Marc Miles, for example, argues, "The Federal Reserve is only one institution supplying liquidity to the world market. Other central banks supply liquidity denominated in other major currencies. . . . If an individual in the United States wants more money, he therefore has several alternative sources. The money he wants may be supplied by the Fed. But the money also could come from foreign countries or the Euromarkets, and involve dollars or some other currency." (See Miles's 1984 book, *Beyond Monetarism*.)

⁶ See footnote 8 on page 9 for usage of "turnover rate."

⁴ Paul A. Spindt, "Money Is What Money Does: Monetary Aggregation and the Equation of Exchange," *Journal of Political Economy*, February 1985.

indeed suggest that "money" usage for financial transactions varies considerably over fairly short periods. This also implies there is potential for great variation in the direction that a reported transactions-money supply might flow.

Acceptance of this possibility — indeed, probability — implies that an excess of purchasing media might be directed to one or more of many possible uses. It need not be directed to the purchase of domestic final goods and services only, where it would stimulate aggregate real output, the general price level, or both. Those are two possibilities, but only two. Depending on market perceptions of relative values, on inflationary fears, on consumer confidence — domestic and international — and on numerous other judgments, excess purchasing media might be directed toward domestic securities purchases, domestic land or buildings purchases, "tangible-asset" purchases, foreign-goods purchases, foreign direct or indirect investment, and who knows what. The distortions that inflating might foster then, are many. It should not be surprising, therefore, that substantial empirical evidence has been found disputing the proposition that changes in the "money supply" and changes in the general price level ("inflation") are closely correlated, although that, too, is supported by a large body of empirical evidence.

PRICE RULES AS A GUIDE FOR POLICY

If there is substantial reason to doubt the accuracy of the official transactions-money supply as a representation of its theoretical counterpart, and if the demand for transactions money is quite unstable, then there is little reason to think that monetary officials would be able to promote the "right" nominal supply for the changing real demand. That is a necessary, if not sufficient, condition for a monetary policy guided by a "quantity rule" (the quantity of money supply) to be effective. In view of the serious questionability of the quantity rule, and of the patent failure of the earlier-used interest-rate rule, other possible guides for monetary policy have received considerable support during the first half of the 1980's.⁷

One proposal would require the Fed to use some measure of commodity prices as its operating guide for short-run policy. Alan Reynolds — one proponent of such a "price rule" (as a second-best alternative to an official gold standard) — has offered this rationale for a price rule in preference to a quantity rule: "If the intent of managed money is to minimize the past decade's extreme gyrations in

commodity prices, there is no reason to suppose the measures of money are a better proxy for prices than prices themselves."⁸ With reference to another alternative proposal to target "real" interest rates, nominal-rate targeting having proven to be a failure, Reynolds reasons, "In order to calculate a real rate, the nominal rate would have to be adjusted by some timely measure of expected inflation. If such a prompt measure of inflation exists, why not stabilize it directly?"⁹

Reasoning along the following lines is offered in support of a price rule. Economic agents demand some *real* quantity of money, but that demanded quantity changes greatly and is unpredictable. But since economic agents presumably optimize, if a *nominal* money supply exceeds their real money demand, as a group they will sense having too much money in relation to their holdings of current-consumption goods and of future-consumption goods (store-of-value goods or financial assets). Agents, therefore, will step up their purchases of goods (present goods, future goods, or both), which will pressure prices upward. A rise in prices, therefore, is a sign that the supply of money (whatever might be its measured quantity) or its rate of growth should be reduced to bring it closer to the real demand for money. (The same relationships would tend to depress prices when nominal money supply is less than real money demand.)

The economic reasoning supporting the price rule has some merit. But when careful thought is given to both its hypothetical foundation and to the specifics of its implementation, a price rule as a guide for monetary policy is found severely deficient. We address the problems of implementation, consideration of which reveals some of the hypothetical weaknesses. The problems are (1) selecting an appropriate commodity price or price index and (2) ascertaining the appropriate magnitude of monetary policy response for a given change in the target price. (We do not even discuss the problem of ensuring that monetary officials will be guided by broad public economic interests rather than narrow private economic or political interests.)

A price rule of the type discussed here would require the monetary authority to seek to vary the stock of money in such a direction and by such a magnitude as to prevent the target price index from changing "substantially," either up or down, over a short time period. Ultimately, the goal is maintenance of the purchasing power of the dollar.

⁷ See the first few paragraphs of the section "Measurement Problems" in Chapter II for comments about the use of nominal interest rates as a guide for policy.

⁸ Alan Reynolds, "Managed Money," *Money: A Search for Common Ground*, Progress Foundation, 1984, p. 113. This source contains citations to other "price rule" advocates. "Proxy" here refers to a "substitute target."

⁹ Alan Reynolds, "Why Gold?", *The Cato Journal*, Spring 1983, p. 225.

The Monetarists' quantity rule has the same objective, but is applied over a long time period.

To be useful as a short-term guide, the target price index must respond quickly to changing conditions. The prices of homogeneous (alike) basic commodities that are traded in competitive world markets where arbitrage ensures virtually instantaneous price adjustment ("auction goods") most nearly meet this requirement. In contrast, the prices of manufactured goods ("customer goods" and services) are inappropriate because they are "sticky." That is, such products are somewhat different from other similar products, and thus their markets are less competitive. Moreover, manufactured-goods prices have a momentum related to explicit or implicit contracts involving suppliers (including employees), customers, or both.¹⁰ Broad price indexes — such as the Consumer Price Index, the Implicit Price Deflator for GNP, or even the major indexes of producer prices — are useless for price-rule purposes, since they lack timeliness in revealing *current* imbalances in nominal money supply and real money demand.

Prices of raw commodities respond quite quickly to monetary imbalances.¹¹ At times, price movements of such goods *might* be an early sign of a money supply-demand imbalance and, therefore, warrant a change in monetary policy, as price-rule proponents suggest. But raw commodities prices also swing dramatically in response to short-run changes in current supply and demand conditions ("real shocks") specific to those commodities. Prices of raw agricultural goods, to illustrate, often change markedly because of supply "shocks" due to adverse growing or harvesting conditions in any major producing region, domestic or foreign. For raw industrial commodities, an observed change in prices at any given time may be an early sign of a developing supply-demand imbalance due to an incipient change in cyclical business conditions, domestically or elsewhere. These types of price movements are essential for inducing appropriate adjustments in the real sector and they would not warrant a change in monetary policy. Price movements of raw agricultural commodities and of raw industrial commodities subject to cyclical business conditions may be highly flexible, but as indicators of short-term money supply-demand conditions their signals would be ambiguous.

¹⁰ The differentiating aspects of auction markets and customer markets and their implications are described in Arthur M. Okun, *Prices and Quantities: A Macroeconomic Analysis*, The Brookings Institution, 1981.

¹¹ Michael David Bordo provides some evidence of this in "The Effects of Monetary Change on Relative Commodity Prices and the Role of Long-Term Contracts," *Journal of Political Economy*, December 1980.

Widely accepted modern pricing thought offers some guidance for further reducing the candidate commodities useful for a price rule. This analysis relates to the pricing process for durable objects that are traded in active markets, have comparatively low transactions costs, and for which accumulated stocks (inventories) are large in relation to usual supply and demand flows. The market prices of such objects at any given time are not determined so much by the supply-demand relationship for *current flows* as by the supply-demand relationship for the *stocks*. For things whose prices thus are largely "stock-determined," current demands (and thus current prices) are more/less affected by immediate events according to expectations of whether those events are more/less permanent.¹² To illustrate, evidence indicates that the common stock price of a corporation that reports unexpectedly low (or high) quarterly profits will change much differently depending on market judgment of whether the low profits reflect a temporary or more permanent condition. Likewise, bond prices will change differently in response to currently observed price inflation or change in the Budget deficit according to market participants' expectations of their permanence and future rate of change.

Expectations of long-run conditions dominate current supply-demand flows in affecting current prices of "stock-determined" assets. Thus, raw commodities traded internationally, whose prices fit the traits of being "stock-determined," would seem especially suitable for price-rule use. Their prices would reflect *world* conditions, would be flexible, and yet would not respond much to temporary supply-demand imbalance, as do prices of agricultural goods and prices of cyclically influenced industrial raw commodities. A substantial change in the prices of stock-determined raw commodities thus would be a clearer signal of a change in expectations about long-run conditions. Additionally, if a commodity's long-run flow-supply response to prices were comparatively low, so that even over a long period new-supply additions to outstanding stocks would be quite predictable, substantial price changes for such a commodity would be even more likely to reflect expectational changes about long-run money supply-demand conditions than long-run conditions specific to that commodity. Such a commodity, or commodities, would be the best candidate(s) for use as a price-rule guide for monetary policy.

¹² Asset pricing is discussed in Okun's *Prices and Quantities*. A clear, short description of the process and how it applies to bond prices is given by Karl Brunner, a leading Monetarist, in "Deficits, Interest Rates and Monetary Policy," a paper presented at the Cato Institute's Third Annual Monetary Conference, 21-22 February 1985.

There is no commodity (or other thing) that more closely meets the price-rule requirements than gold. Its price plainly is stock-determined. Because of the large investment and time required to initiate gold mining ventures, its long-run supply is much more predictable than other commodities (and immeasurably more predictable than that of financial assets). Moreover, its stock is held throughout the world by both public institutions and private persons. And surely the market for gold is a world market. Gold may have these attractive features today in part because of its long historical role as the preferred monetary commodity. But that historical role seems equally to have evolved through the market process because gold's features best serve monetary purposes.

MAGNITUDE OF POLICY RESPONSE

If a timely and unambiguous price series could be ascertained and employed, officials still would have the thorny problem of determining the "right" magnitude of policy response for any observed change in the price indicator if monetary policy is to produce macroeconomic objectives superior to the unfettered market.¹³ Monetary specialists agree that officials can quite closely control the amount of monetary base (the total of bank reserves and currency held by the public). But they have only tenuous "control" over the amount of purchasing media (transactions money) that any given base can support. Bankers and the nonbank public determine that. See "But What Can the Fed Actually Control?" section of Appendix B. Yet, it is purchasing media, not the base, that is closely related to income and output growth, business cycles, price inflation, and general financial stability.

Monetarists have presented much empirical work indicating that changes in "money" usually first affect spending and output and only later affect broader price measures.¹⁴ Based on correlation tests between a number of price measures and M1 changes, R. W. Hafer concluded "that prices are more responsive to the changes in M1 that have occurred during the preceding three-year period than to the changes in the previous quarter."¹⁵

¹³ The conditions necessary for short-run stabilization policy to be effective have been clearly described by Monetarists. Milton Friedman's discussion of these in *Essays in Positive Economics* (University of Chicago Press, 1953) is the seminal work on this topic.

¹⁴ "Usually" is an important qualification. Even Monetarists admit that nonmonetary factors — such as OPEC oil price hikes and the degree of economic "slack" — can affect the timing or magnitude of relationships among price changes, output changes, and M1 changes.

¹⁵ R. W. Hafer, "Monetary Policy and the Price Rule: The Newest Odd Couple," *Review*, Federal Reserve Bank of St. Louis, February 1983, p. 11.

Currently observed price changes thus may reflect monetary conditions not only of the immediately preceding period (say, 3 months) but also of the preceding 3 years or more. And it is not clear whether conditions in the early or later part of such a period of several years have had the greater effect on currently observed price changes. It therefore is not clear how much officials should change monetary policy (the amount of monetary base) from that of the immediately preceding period. Quite possibly short-run policy changes based on a price rule would induce greater variability of money supply changes. In turn this could foster greater short-run fluctuations in real output, raise economic uncertainty, and retard long-term economic growth, contrary to stated objectives.

Some price-rule proponents assert that the foregoing argument is impressive only if one accepts the Monetarists' empirical work and their hypothesized relationships. As mentioned above, doubts about the usefulness of reported M1 figures raise questions about the relevance of Monetarist studies linking reported M1 changes, output changes, and price changes. Furthermore, there is some evidence that the direction of causation runs from changes in the public's demand for money (related to changed plans for spending) to changes in the supply of money, the contrary of the Monetarists' hypothesized direction of causation.¹⁶ If so, a credible price rule plausibly could dampen money demand variability, and thus money supply variability, even though frequent short-run changes in monetary policy might raise monetary base variability. Price-rule proponents reason that if the public "knows" the long-term thrust of monetary policy, its demand for money (and related attitudes toward spending, saving, investing, and producing) will not be so sensitive to short-run changes in policy as it is now, when the public "knows" neither the short-run nor long-run thrust of policy.¹⁷

Price-rule advocates emphasize the importance of public confidence in the long-term purchasing power of the monetary unit. They assert that only with such confidence can market participants have a reasonable basis for formulating long-term plans and for undertaking long-term capital projects, which are so important to rapid advancement in economic welfare.

There is little doubt that less uncertainty about the long-run value of the monetary unit would be favorable for the economy. Yet, one need not be a card-carrying Monetarist to think that substantial short-run policy changes probably would add to

¹⁶ See Marc A. Miles, *Beyond Monetarism*, for discussion and references of pertinent studies.

¹⁷ See Alan Reynolds, "Managed Money," *Money: A Search for Common Ground*, Progress Foundation, 1984.

economic risk and retard economic growth. Economic agents' decisions to spend, save, invest, and produce are affected by short-run and intermediate-run expectations as well as long-run expectations. Business cycles attest to this. For short-run policy-induced changes in the monetary base not to have even temporarily destabilizing output and income effects, economic agents would have to instantaneously "know" how much of an observed change in the monetary base is warranted (that is, necessary for balancing nominal transactions-money supply with real demand) and how much would be inflationary or deflationary. At the event, policymakers surely lack this understanding, as do private economic agents as a group.

The market process, with its price signals, is a discovery process by which economic agents grope their way toward some aggregate balance out of millions upon millions of individual subjective choices among available alternatives. Observed changes in the monetary base of *some* magnitude and of *some* duration might affect only price expectations and, consistent with price-rule reasoning, be reflected fully in a price change of the target commodity — say gold. But in reaching those expectations, private agents are likely to use much the same economic indicators that policymakers now use. The body of thought called Rational Expectations has illuminated the point that any economic information policymakers might use ostensibly in improving on market outcomes is also available to private economic agents and, therefore, official policy is useless at best and probably counterproductive. The corollary is that private economic agents *as a group* do not have better macroeconomic information than that constituting the current dubious state of economic understanding.¹⁸

The expectational changes reflected in any price-rule target change would be dictated by observed changes in the many macroeconomic series now deemed important by policymakers: money series, credit series, price series, investment series, output series, productive-capacity series, income series, labor series, securities series, foreign-exchange rates, international flows, and on and on. Depending on the most immediately pressing problem, the focus of economic theory and official policy has switched among these indicators. In overemphasizing one or two of these macroeconomic indicators, monetary excesses (and, less often, deficiencies) that were concentrated in flows to sectors other

¹⁸ However, private agents alone "know" their economic preferences. Public policymakers, even if they were to have pure public-interest motives, lack this crucial information and have no way of ascertaining it. They thus have less information than private agents and their policies are more likely to worsen economic outcomes than to improve them.

than those reflected in the series most closely followed by policymakers were not recognized as excesses until those areas became major problems.

NO "GOOD" POLICY GUIDE

Since 1980, fluctuations in the growth rate of M1 have been substantial, but the trend rate of growth has changed little from that of the 1970's. Real output, too, has fluctuated around its 1970's trend-rate of growth. Stock prices have increased. Foreigners' willingness to hold dollars did also until early 1985. Increases in broader price indexes have slowed, and raw industrial commodities prices have actually decreased.

Price-rule proponents (and Fed policy discussions) point to, variously, "low" rates of increase in broader price measures, declining prices of raw industrial commodities, and little change in the price of gold as indications that money supply is not excessive in relation to real money demand in spite of rapid increases in reported M1. They then conclude that monetary policy does not need to be "tightened"; indeed, some of them warn that tightening would kill the cyclical expansion. For reasons discussed in this bulletin to this point, that view is not totally without support. But neither is it the only plausible one.

Economic understanding simply is not advanced enough to warrant confidence that changes in prices (even that of the most useful monetary commodity — gold), in monetary aggregates, in interest rates, or in any other such series are unambiguous indicators of underlying money supply-demand conditions at the time. Thus, monetary officials do not have a sound basis for expecting that their present policy or a change in it is more likely to improve economic conditions than to worsen them. For other economic goods, the recognition that central planners lack essential economic information has led to the conclusion that private agents acting through markets can best provide the quantities and qualities of goods people want. Increasingly, economic analysis and the evidence of repeated policy failures suggest there is no "good" rule for conducting an official monetary policy and "money" should be market determined.

At the microeconomic level of individual banker's decisions to create or to cancel purchasing media, there is a sound basis for determining the "money supply." The basis is that each banker limit the creation of purchasing media to the realizable prices of specific newly produced goods being marketed. This notion was widely accepted early in this century, and was known as the "commercial-loan theory" or "real-bills doctrine" of banking. We call it sound commercial banking. It is the topic of the next chapter.

IV.

SOUND COMMERCIAL BANKING

IN Colonial America, early experiments by the several colonies with paper currency (as well as those with other substitutes for specie) foundered because limits on their creation were ineffectual. Too much money was issued, and the "money" tended to worthlessness when it no longer was generally accepted in transactions.¹ The framers of the Constitution specified gold and silver coinage as the money of the United States in a deliberate attempt to prevent the further issue of paper currencies that had so disrupted the several colonies at various times and had threatened the existence of the fledgling republic during the Revolution and in the years following it.

During the early decades of this country's history, there was no money-credit system capable of fostering the greatly-to-be-multiplied number of transactions associated with the growth of the United States from the status of an economic pygmy to that of an economic giant. No theory of money and credit developed to that date offered a solution to the problem; no economists had proposed how the task could be accomplished; no government planners were prepared to provide the increase in purchasing media that would be needed in the decades to follow; and bankers generally were as ignorant of the broader consequences of their actions as they are today.

Nevertheless, the problem was solved. Unplanned evolutionary development in free markets accomplished a task that might well have seemed impossible to anyone who could have foreseen the need. By the later 1800's, increasing output no longer threatened to outrun the capacity of the money-credit system to efficiently effect the transactions that were an integral part of industrialization and mass marketing.

To illustrate the magnitude of the task to be

done by money during the decades following the Civil War, production of the things desired increased at an unprecedented rate. In only a man's lifetime, about 70 years, the volume and exchange value of things passing through markets in the United States multiplied more than 50 times, although population increased only 4 times. Gold in circulation (including coins and, later, gold certificates) multiplied only 8 times from 1865 to 1930 (the peak year), but total purchasing media in use (checking accounts plus currency) multiplied about 20 times from 1867 to 1934.

Aiding this growth was the evolution of sound commercial banking. (See Appendix C for a more extended description of sound commercial banking.) It tended to foster a dynamic balance between the purchasing media available to prospective buyers for use in the markets and the gold-exchange value of newly produced things available for purchase. The expansion of purchasing media in excess of the available monetary commodities was based on the discovery by bankers that some of the claims they issued were not presented for redemption in the monetary commodity but were exchanged for other things in the markets. The sellers of those other things then returned claims to the bankers in payment of loans that originally involved the creation of claims.

Thus, when gold was the premier monetary commodity, only a portion of the purchasing media in use represented the monetary commodity offered in the markets, which included the gold in the banker's vaults that was continuously "offered" to redeem their demand obligations. Most purchasing media, although used for exchange purposes as though they were gold, actually represented the gold-exchange values of other things offered in the markets.

The dynamic balance fostered by sound commercial banking was not, to repeat, the result of the deliberations of official committees, economists, or planners. Indeed, the bankers, borrowers, and lenders who participated in the process probably gave little thought to the monetary implications of their actions that were determined by market conditions. Because the claims issued by bankers to represent the gold-exchange value of things offered in the market could be redeemed in gold, misjudgments and changes in market conditions were quickly reflected in shipments of gold.

This principle applied among industries as well as among geographical areas, whether they were

¹ See Bruce D. Smith, "Money and Inflation in Colonial Massachusetts," *Quarterly Review*, Federal Reserve Bank of Minneapolis, Winter 1984, for an interpretation of an episode that challenges the widely accepted view that there is a direct link between the rate of growth of the "money supply" and price inflation. From 1720 to 1749, price inflation accelerated when money growth accelerated. But subsequent to a currency reform passed in 1750, which made the currency redeemable in specie on demand, that link was broken. With the public's confidence in currency restored, the demand for currency evidently increased, so that a rate of increase in the supply of currency that earlier would have been excessive was not so after the reform. Because of fragmentary data, Smith's interpretation is not the only plausible one for that episode.

nearby towns, states, regions, or even countries. The outflows of gold ensured that bankers who could not or would not adapt to market conditions soon found themselves bankrupt and out of the market. Bank runs, adverse clearing balances, gold losses, etc., also kept banks "honest," or they simply ceased being banks (that is, they went broke).

This is not to say that the dynamic balance fostered by the evolution of sound commercial banking eliminated fluctuations. Economic growth involved change, and change involved risk. New products, processes, and markets did not arise as self-fulfilling prophesies of planning boards; rather, they arose as ventures into the unknown and unfamiliar. Mistakes probably were the rule rather than the exception, but errors and distortions could not cumulate to catastrophic levels except when Government intervention prevented early correction of the errors. In the absence of Government intervention, those early corrections would affect chiefly those persons local to the misguided ventures, not the entire country or perhaps several countries.

Today's nationwide and worldwide financial crisis can be traced in part to the focus of economic thought and policy on aggregate *quantity* levels of activity to the virtual neglect of *quality* considerations. Keynesian thought focuses on total nominal demand, total output, the rate of total investment, the availability of total credit, the general level of interest rates, and other aggregate measures of economic activities. Except for the *distribution* of income, Keynesian thought gives scant attention to the extent of balance or imbalance among the individual units and components within the aggregates. As described earlier, Monetarist thought likewise rests on aggregates: the total quantity (supply) of "money." While changes in aggregate series are revealing and are a useful part of descriptions of economic processes and relationships, they are not sufficient in themselves.

A total quantity of credit in and of itself does not reveal whether it is or is not a sustainable (equilibrium) amount. A sustainable credit structure is one in which every borrower is willing and able to pay in real value his debt as contracted at maturity. Banks as "borrowers" of depositors' balances must pay their demand liabilities "on demand." If debts between individuals, between banks, and between banking systems are continuously limited *in fact* to those that can be offset by monetary claims against other individuals, against other banks, and against other foreign institutions, *there is no limit to the volume of credit that can be sustained by a given asset-reserve base*. The corollary in the banking sphere is that a given ratio of a bank's asset-reserves to its liabilities does not deter-

mine if the amount of asset-reserves is or is not sufficient to support the liabilities.

SOUND CREDIT RESTS ON THE EXCHANGEABILITY OF GOODS

A sound credit structure rests on the exchangeability of the specific goods debtors expect to sell to others in order to gain credits needed to offset their debts.² This applies to banks (and their credit instruments used as purchasing media) as well as to nonbanks. For banks, the exchangeability is one step removed; it is accomplished through the bank's loan customers. An appropriate increase in total credit (and transactions money), therefore, is determined by the increase in the volume, the exchange values (prices), or both of the specific goods (explicit or implicit) against which the credit is granted. If in every instance, credit extension is limited to the in-fact-realizable real prices of the *goods debtors expect to exchange for credits* in order to clear their debts, both the distribution of credit and the total amount of credit will be sustainable.³

Every individual debtor would have credits against other members of the community sufficient to cancel his debt; every bank would have credits against other banks sufficient to pay its depositors and to offset any debits with still other banks. The national banking system as a whole would have sufficient credits against foreign banking systems to offset debits with others. *All debts would be canceled by credits — that is, by offset.* No transfer of reserve assets would be necessary — by individuals, by banks, or by banking systems.

When, however, more credit is extended on the basis of the expected value of specific goods available for exchange than the debtor can exchange them for, the debtor does not gain sufficient credits from other members of the community to offset his debt. If the debtor has other assets he can exchange (sell) for credits sufficient in amount to offset his debt, the lender's (say, bank's) credits would remain sufficient to offset its debts.

But if the borrower does not transfer to his bank sufficient credit to cover his debt, the bank would not have sufficient credits to offset its liabilities to depositors, its debts with other banks, or both. The

² "And services" is not added to "specific goods" because the provision of services ultimately is settled by the exchange of goods, although many exchanges of services for other services may occur before a good is taken in final exchange and consumed.

³ The counterpart in the real sector of the economy would be continuously fulfilled expectations by producers and consumers — that is, general equilibrium in the goods sector. Jobs and incomes, therefore, would be maintained, which is the connection all debtors have to the exchangeability of goods as the source of credits to offset debts.

bank then might have to sell assets (constituting part of the bank's net worth, or capital) in order to gain enough credits to offset its debts with other banks.

Alternatively, the net debt position of the one bank (or many banks) might be maintained for a time. The banking system *as a whole* would continue to have a balance in debts and credit among the banks, inasmuch as the net debt position of some banks would be counterbalanced by the net credit position of others. No assets of the debtor banks would have to be sold. Therefore, if the debtor banks were many and if the book value of the assets they held as net worth were far more than the banks could realize on a forced sale of them, the banking system as a whole could conceal the asset deficiencies, block adjustments in relative prices of assets, and prevent the contraction of total credit, including the purchasing media component.

It is imaginable that a national banking system could indefinitely maintain a large imbalance in debts and assets among its separate component banks, and the separate banks in turn could do likewise for their individual debtors -- were it not that there are international goods and credit flows. When credit is extended on a transaction involving a foreign entity, the potential arises for an imbalance between debts and credits among national banking systems. When those imbalances occur, the net-debtor system must transfer to the creditor system some internationally acceptable settlement asset to clear its debt. Or, alternatively, the creditor national systems might allow the debtor systems to remain indebted. As with the component-member banks of a national system, the credits and debits of the international banking system as a whole would remain in balance although some component national systems might be chronic net debtors. International adjustments in relative prices, wages, and flows of goods and long-term investment funds thereby would be blocked, however.⁴

⁴ There is the possibility that such immediate adjustments should be "blocked," if nonpayment is attributable to a temporary condition, say, drought or cyclical recession. The difficulty is to differentiate at the moment between temporary and more lasting imbalances. Private creditors assessing the condition as temporary would be inclined to renegotiate the credits, albeit at perhaps penalty terms, in which event there would not be a reported imbalance. When governments act to offset private-sector imbalances and thereby block adjustment, the assessment of politicians as to the degree of permanence of the condition overrides that of market participants. There is no basis for expecting the politicians' decision to be more accurate. On the contrary, inasmuch as the time horizon of incumbent officials is the next election and inasmuch as they do not risk their own funds when they grant government credit, they are

These relationships are evident in the way today's debt crisis is being handled:

- The Federal Farm Credit System is created to direct more credit to agriculture than private market participants are willing to commit there. The credits turn out to be uncollectible, so it is proposed that the Farm Credit System's assets and liabilities be consolidated (indirectly) with the U.S. Treasury to cover the deficiency of its credits and of the market value of its capital-reserve assets.

- The FSLIC is formed to protect S & L depositors from unsound credits extended by individual S & Ls. But so many S & Ls have extended unsound credits that the FSLIC no longer can cover the deficiencies with its own credits and net-worth assets. A new organization is proposed in order to add some FHLBB credit power and asset reserves to the deficient ones of the FSLIC.

- Private banks in many countries made unsound loans to borrowers (private and public) in other foreign countries. The borrowers cannot earn enough credits to offset their debits with out-of-country lenders, and the debtor national banking systems do not have sufficient international settlement assets to transfer to the creditor systems to settle the deficiency. Creditor national systems transfer some of their international settlement assets and national credits to the IMF and World Bank and empower them to create or borrow more. This consolidates, in part, debtors and creditors among different national systems and thereby enables credits to be more nearly offset by debits. To the extent international settlement assets (reserves) are centralized in these institutions or are increased by them (the IMF's SDRs), these institutions can settle (pay) some of the remaining net deficiency of credits.

SOUND PURCHASING MEDIA AND COMMERCIAL LOANS

Today's massive debt problems thus are traceable to the extension of credit based on inaccurate estimates of realizable values from expected sales of goods. When a businessman extends credit to another businessman he receives the debtor's IOU. The creditor-businessman ordinarily does not use the debtor's IOU to make payments to other members of the community. If the IOU turns out to be uncollectible, the loss is absorbed by the creditor alone. (Although, if large enough, it could affect many employees, vendors and their employees.)

A bank's credit extension differs from that of a

biased toward interpreting as temporary every imbalance that would require difficult domestic economic adjustment during their incumbency.

nonbank. When a bank originates credit, it takes as an asset an IOU that does not circulate as purchasing media ("money") and extends its own IOU, a checkable deposit balance, that does serve as purchasing media. By substituting its own liabilities for those of individual nonbank debtors, a bank transforms specific debt into debt generally acceptable as a means of payment throughout the community. In doing so, a bank also has the potential for taking specific unsound, distortionary credits and generalizing them more widely in the community.

For all banks operating within a national banking system, the "community" is the national economy. Unsound specific credits of individual banks that are absorbed within a consolidated national banking system, therefore, have generalized distortionary effects throughout the national economy. And likewise for an international money-credit system and the international real-goods economy.

Since bank credit, especially that constituting purchasing media, has a widespread effect on the community at large, it is of great importance to the fostering of a sustainable economic condition that banks accurately estimate the values in anticipation of sales of goods ultimately to be used to settle debts. In the words of one student of bank credit, "a banking system which extends credit only on goods which are in the process of marketing or as near final sale as possible, thus limiting the degree of anticipation, will not make as many errors in judgment as one which extends credit for the purpose of providing the capital equipment to be used in the production of other goods. Thus clearance will be improved and the necessity of resorting to reserves in order to pay for goods which have not been exchanged against other goods will be reduced. When a banking system ceases to base the medium of exchange on exchangeable goods and becomes more deeply involved in production, it is treading on dangerous ground. For by making the bonds of industry or loans on stocks the basis of its deposits [Ed.—purchasing media], the bank incurs a larger measure of liability for the risks of industry. Even though its debtors fail to repay their loans, it must meet its obligations on demand. Therefore, not only will industrial mistakes affect the bank's net worth, but losses will have to be made up by payments out of its reserves."⁵

The notion that banks should limit the creation of their monetary liabilities to the realizable exchange value (real prices) of *newly produced goods being marketed* is known as the "commercial-loan

theory" or "real-bills doctrine" of banking.⁶ If purchasing media creation were so limited, the nominal supply of purchasing media would be continuously balanced by an equivalent real demand for it for effecting exchanges of newly produced goods. Chronic inflating would not occur.

Early in this century monetary experts widely accepted the commercial-loan theory of banking, although it also had many critics. It had enough support that when the Federal Reserve Act was passed in 1913 the Act specified that member-bank borrowings from a Federal Reserve bank be backed by "eligible paper," specifically credit instruments evidencing such commercial loans. And Federal Reserve banks were required to back their "notes" outstanding (paper currency) by a combination of gold and commercial-loan credit instruments.

FALLACIOUS FALLACIES

But over the years the commercial-loan principle of sound banking lost credibility among monetary "experts" and in monetary theory, as did gold. That these two key aspects of sound money-credit arrangements fell into intellectual disrepute together is more than coincidental. The commercial-loan principle, or real-bills doctrine, of money and banking was said to be fatally flawed by two fallacies.⁷ Lawrence H. White, in referring to Lloyd Mint's criticisms, characterized them as the *nominalist fallacy* and the *inelastic-supply-of-bills fallacy*.⁸

The alleged *nominalist fallacy* is that the real-bills doctrine provides for the determination of one

⁶ In a narrow sense a "real bill" is a specific type of credit instrument, being an order to pay (a "draft") a specified amount at a specified time (usually in 90 days or less), drawn by one business firm (or merchant) or another business firm (or merchant) to whom the first has shipped goods. (See *Instruments of the Money Market*, Federal Reserve Bank of Richmond, 1981, p. 114.) In a broader sense, a "real bill" is any type of credit instrument evidencing a short-term obligation arising in connection with goods being marketed. A broad-sense "real bill" involving a bank as creditor is a narrow-sense "commercial loan." The "real" modifier to "bill" is attributable to Adam Smith. He used it to differentiate bills of exchange that genuinely are "drawn by a real creditor upon a real debtor, and which as soon as it becomes due, is really paid by that debtor" from fictitious bills of exchange (Smith called them "circulating bills") that two or more traders conspire to draw and redraw against each other when the earlier one becomes due, in effect never paying. (See *The Wealth of Nations*, Book II, Chapter II.)

⁷ See Lloyd Mint's *A History of Banking Theory*, University of Chicago Press, 1945, for a comprehensive (and flawed) criticism of the real-bills doctrine and Thomas Humphrey, "The Real Bills Doctrine," *Essays on Inflation*, fourth edition, Federal Reserve Bank of Richmond, pp. 73-83, for a summary treatment of it.

⁸ Lawrence H. White, *Free Banking in Britain*, Cambridge University Press, 1984, pp. 120-122.

⁵ William E. Dunkman, *Qualitative Credit Control*, Columbia University Press, New York, 1933, p.33.

nominal quantity (the supply of purchasing media) by another nominal quantity (the sum of the prices of the goods supporting the commercial bills of exchange) and, therefore, the doctrine would not prevent the creation of an excess nominal supply of purchasing media. According to the supporting reasoning, if goods prices rise for some nonmonetary reason (possibly because of some "shock" such as a poor harvest, an OPEC-like cartel, or war in another country), the initial price rises of those specific goods would warrant the creation of a larger nominal amount of commercial bills and this in turn would induce an increase in the supply of purchasing media that would support the initial price increases and generalize the price rise throughout the economy. Accordingly, a vicious inflationary circle could arise: higher prices would "justify" monetary expansion, which would induce further price rises, and on and on. By this reasoning, the noninflationary supply of purchasing media would be an indeterminate quantity under the real-bills doctrine.

The nominalist fallacy now is widely admitted even by real-bills critics to apply only in a fiat-money regime. If the monetary unit is gold and all monetary liabilities are convertible into gold, "the domestic money stock is determined by the conjunction of the exogenously determined purchasing power of gold (world price level in terms of gold), the definition of the domestic monetary unit in terms of gold, and the desired real money balances of the domestic public."⁹

An essential aspect of the commercial-loan theory is that bankers accurately judge the realizable exchange value of the goods backing the short-term, self-liquidating loan. With gold as the monetary unit, bankers would have a standard against which exchange values (prices) of specific goods could be judged. If, nevertheless, a banking system as a whole created more convertible monetary liabilities than were justified by the gold-exchange value of goods marketed, and if as a consequence the general price level began to rise, gold at banks would become a "bargain" in relation to newly produced gold and the people would present the bank liabilities for redemption in gold. This would leave the banks with smaller gold reserves and force them to cut back their liabilities in order to maintain a prudent gold-reserve ratio. The crucial aspect is that "the price level" would be determined by the exchange value of gold for all things in general, so an initial monetary excess could not feed back on itself indefinitely.

⁹ White, p. 121. "Exogenously" refers to "external" conditions; specifically in this instance, all the factors that determine the world exchange ratios between gold and other things.

The alleged *inelastic-supply-of-bills fallacy* relates to the volume of bills offered to banks for discounting (that is, as collateral for bank loans) and thus used as the basis for originating additional purchasing media under the commercial-loan principle. Critics assert that, contrary to the doctrine's implicit assumption that the volume of real bills is determined by exogenous factors, the volume of bills offered to banks is determined by the rate of interest banks charge on their loans in relation to the rate of return borrowers can earn on the borrowed funds.¹⁰ Therefore, say the critics, banks can generate an increase in the volume of real bills presented to them for discounting by lowering their interest-rate charges and thereby "set in motion a process of cumulative expansion of bills, loans, money and prices."¹¹

White describes the fallacy as it applied to the Bank of England's operations even after gold convertibility was restored in 1821 (a period of repeated overexpansions and subsequent contractions of paper money and credit): "In theory, however, there was no obstacle to the bank's overissuing through aggressive discounting or open-market purchases of real bills. The qualification . . . that the bank should discount *at the market rate* was pointless, since the bank had the short-run power, by overissuing, to drive down the market."¹² [Emphasis in original.]

Inasmuch as the Bank of England had been granted a monopoly of note issue in and around London and also was empowered to operate much as a central bank (its notes could be used as reserves by other banks), it could indeed adopt and pursue for some time a low-interest policy that would "set in motion a process of cumulative expansion of bills, loans, money and prices." Initial unsound credit extensions arising from the Bank's "aggressive discounting" would not generate reserve losses to other domestic banks (an internal gold drain) and force a change in policy because Bank of England liabilities (notes) served as reserves for other banks and those banks therefore had less reason to demand gold itself. Not until "easy credit" in England resulted in a loss of gold to foreigners (an external gold drain) was the Bank of England forced to contract domestic money and to accept the consequences of higher interest rates and economic contraction. Even the Bank of England could "set" a below-market interest rate (an aggressive discount policy) only for a time.

¹⁰ "Exogenous" in this context refers to conditions outside the banking system — specifically, all the factors that determine the volume of newly produced goods offered in the markets.

¹¹ Humphrey, p. 80.

¹² White, p. 122.

A single bank operating in a competitive free-banking system is an interest-rate taker.¹³ The interest rate on *quality* real bills (those that actually, *ex post*, generate sufficient credits to clear the related debt) is a market-given figure. It would be determined by the time preferences of the people and the real rate of return on productive capital.¹⁴ A single bank charging below-market rates would discover it would not earn an adequate return on its commercial loans, and one charging a too-high rate would not attract borrowers.

For the competitive free-banking system as a whole (with no central bank), an “aggressive policy” to generate a higher total amount of bills would imply acceptance of lower-quality real bills. Lower quality in this context could imply only that virtually all bankers would (1) nearly simultaneously overestimate the realizable exchange value of the goods supporting the loans, or (2) intentionally disregard accurate estimates, with the consequence that more credit (including the purchasing media component) is granted than an accurate assessment would justify. Such lemming-like action by bankers could initiate a distortionary cumulative expansion process of more loans, more money, more spending, higher output, and more bills to start the process again. But if any banker(s) were cautious, the aggressive bankers would lose reserves to the duly cautious one(s), and the aggressive ones would be forced to become more cautious. Thus, only in the most improbable event that virtually all bankers simultaneously would become overoptimistic would the supply of real bills be overstimulated within a competitive, free-banking system operating on the commercial-loan principle. Under reasonable circumstances, the supply of real bills would indeed seem to be inelastic, contrary to the alleged inelastic-supply-of-bills fallacy.

CONTRASTING DIRECTIONS FOR REFORM

The overriding importance of limiting debts between individual borrowers, between banks, and between banking systems to those that in fact can

¹³ That the system might not be perfectly competitive does not imply that a single bank could operate largely as a price setter. On this point Ernst Baltensperger (“Alternative Approaches to the Theory of the Banking Firm,” *Journal of Monetary Economics* 6, 1980, p. 18) commented, “[T]he mere fact that these markets do not precisely satisfy all the requirements of a textbook perfect competition market model does not imply that the monopoly model is better than the competitive model. There are virtually no real world markets which precisely meet all the requirements of the former, either both models are extremes, and the question is which one is the better approximation.”

¹⁴ Time preference refers to the decisions of income earners to spend and consume now or to save (and invest) and consume later.

be cleared against credits suggests the essential aspects of a sound money-credit structure: (1) gold as the monetary unit; (2) application of the commercial-loan principle of banking; (3) free banking (with no central bank) so that individual banks and the entire banking structure would be subjected to the continual test of reserve losses and continual discipline of market competition. During the past decade or so, as monetary conditions domestically and internationally under fiat-money systems have been widely recognized as troublingly volatile, there has developed an increasing interest in and academic respect for a role for gold in a reformed monetary system. The possible roles mentioned cover a broad range.

Not just any role for gold would be useful in restoring a sound system. As we have described, a monetary unit of gold is essential for establishing price-level determinancy; without which all prices and other monetary variables are totally relative.¹⁵ Gold as the monetary unit thus improves the accuracy of estimated values in anticipation of sales of goods expected to clear debts. For this standard-of-value function of gold to be effective, demand liabilities (checkable deposits) stated in the monetary unit must in fact be redeemable in gold at the option of the claim holder. In other words, monetary demand claims must be fully convertible into gold.

Full convertibility is essential for two reasons. One is to provide the continuous market test and determination of exchange rates between things in general and gold. This is the process by which price-level determinancy is made effective. If the general price level begins to rise and if some purchasing media holders perceive the rise as an incipient chronic trend, those individuals should have a mechanism for directly affecting the levels of purchasing media and credit.¹⁶ Convertibility would provide it, since holders of purchasing media could choose to withdraw gold, and the banks would lose reserves and be forced by prudence to reduce their demand liabilities.

Gold also is essential for use as the ultimate settlement (reserve) asset between banks (and between national banking systems). Inasmuch as gold is a monetary asset that is nobody’s liability, its value in exchange, and therefore its usefulness for settling debts, does not depend on the saleability

¹⁵ We refer to gold as the monetary commodity rather than another commodity (or other commodities) because thousands of years of history indicate that, across national borders and generations, gold is the market’s first choice as the monetary commodity.

¹⁶ This contrasts with the indirect mechanism available under a fiat-money regime. The indirect mechanism is the Monetarists’ hypothesized “transmission mechanism,” by which changes in the money supply affect the real-goods sector (see Chapter III).

of other goods to provide an offsetting credit. Moreover, gold reserves cannot be created at the whim of bankers or monetary officials. Therefore, when excess credit advances lead to calls on bank reserves to settle unmatched debts and the reserve base thus seems inadequate, purchasing media and credit flows would change (and foster adjustment in prices and output). Under fiat systems, reserves are increased in order to make them “sufficient” for the settlement of greater unmatched debts. The repeated creation of additional fiat reserves by authorities in order to forestall incipient money and credit contractions (and the related economic recessions or depressions) was the source of the modern inflationary era. Being outside the control of authorities, a gold-based monetary system would induce earlier correction of (1) unsound purchasing media and credit creation and (2) the related real-sector maladjustments.

The commercial-loan principle of banking, we submit, would re-evolve voluntarily in a free-banking, gold-based monetary regime for the reasons described above – in short, because it best assures the settlement of bank liabilities by offsetting credits rather than by the depletion of bank reserves. This principle of sound banking need not, and should not, be established by regulation or law, because banking practices should be determined by market forces and not imposed “by authority.”¹⁷ However, as mentioned above, experience with sound commercial banking during the 19th century was favorable enough that it was incorporated in the original Federal Reserve Act. Admittedly, its appli-

¹⁷ For a conjectural history of the evolution of an unregulated monetary system and its probable institutional features, see George A. Selgin and Lawrence H. White, “The Evolution of a Free Banking System,” Economic Research Report 85-38 (November 1985), C. V. Starr Center for Applied Economics, New York University. They write: “The evolution of a free banking system, following the emergence of standardized commodity money, is seen as proceeding through three stages. These are, first, the development of basic money-transfer services which substitute for the physical transportation of specie; second, the emergence of easily assignable and negotiable bank demand liabilities (inside money); and third, the development of arrangements for the routine exchange (“clearing”) of inside monies among rival banks.” (p. 2)

cation leaves room for error and abuse, which impose a subsequent real-sector adjustment cost. But so does the market process for other goods and services. Yet, the market process provides substantial net benefits.

As with those other goods and services, the alternatives to market-determined money seem much more costly in terms of both economic efficiency and freedom. The slow dismantling of external constraints on reserve and purchasing media creation and the ever-broader cover-ups of unsound credit and unmatched debts has left a world financial mess that has yet to be solved. The full price for fiat monetary abuses is far from having been paid in terms of real-sector adjustment.

The current financial turmoil that is the legacy of unsound money also jeopardizes the people’s freedom generally. Proposals for major reform of the monetary system also run in the direction of *more* central (political) control of fiat-money and credit activities – including control by international bureaucrats. (See Appendix D, “Plans for International Monetary Control.”) And, as mentioned earlier, although apparently not animated by a blueprint for reform, case-by-case “solutions” to major debt problems are providing more control to politicians and bureaucrats – domestic and international – over credit creation and flows.

A critical juncture in money-credit thought and policy is approaching. For those who think experience has amply demonstrated that economic freedom is a *sine qua non* of economic advancement and political freedom, present money-credit trends must be deeply disconcerting.¹⁸ The trend toward increased political manipulation of money and credit must be reversed to enhance the prospect of sustained economic progress. A competitive, free-banking, gold-based monetary regime operating on the commercial-loan principle would be the sound, lasting solution to today’s financial and monetary troubles.

¹⁸ For an informative, readable discussion of the important role sound money plays in a free, progressive society, see S. Herbert Frankel, *Money and Liberty*, Studies in Economic Policy, American Enterprise Institute, Washington, D.C. (1980).

DIRECT MEASURES OF INFLATING

WITH the commercial-loan theory of banking as a basis, AIER's founder, the late Edward C. Harwood, developed during the late 1920's and subsequently refined a method for directly measuring inflating. By the name "inflating" we refer to *excess* purchasing media in use, *not* to rising prices.¹ As long as the dollar was a weight of fine gold and dollar purchasing media were convertible into gold (until August 1971), the amount of *noninflationary* purchasing media was estimated as the total of (1) gold held by the banking system (including official agencies) and (2) the estimated amount of automatically self-liquidating commercial, industrial, and agricultural (CIA) loans, which we shall call *bona fide* commercial loans. Automatically self-liquidating CIA loans are loans based on newly produced goods (not necessarily final goods) appearing on the market during the time the credit is outstanding. Such loans are automatically self-liquidating assets to the banks holding them because the borrowers' sales of the related goods provide the wherewithal for repayment of the loans.

If individual banks (including a central bank, if there is one) would restrict the origination of purchasing media to their acquisition of gold and *bona fide* commercial-loan assets, the total amount of purchasing media outstanding (and ordinarily in use for making purchases) would be balanced by an equivalent total monetary value of newly produced goods available for purchase.² ³ (Under a con-

¹ For a detailed description of the method and of the theory relating inflating to business cycles, see E. C. Harwood, "Cause and Control of the Business Cycle," *Economic Education Bulletin*, AIER, September 1974. For a summary and recent interpretation of Harwood's theory, see Jagdish Mehra, "Keynes vs. Harwood — A Contribution to Current Debate," *Economic Education Bulletin*, AIER, November 1985.

² The importance of bankers' accurately estimating the realizable monetary value of the specific goods offered for sale and serving as the basis of the loan is discussed in Chapter IV.

³ If some portion of purchasing media originated in this way were used for making purchases of items other than newly produced goods (used goods, foreign-made goods, financial assets), the *relative* prices of newly produced goods and those of the other items would change. This would be a signal to bankers to revise the amounts they loan on the specific newly produced goods whose prices fell and also a signal to consumer-savers to consider new relative values between and among newly produced goods vs. used goods, present goods vs. future goods (consumption vs. investment) and domestic goods vs. foreign goods. See Chapter III.

vertible-currency system, the gold [or other monetary commodity] held by banks is effectively offered on the market at all times and thus is part of the total value of goods available for purchase.)

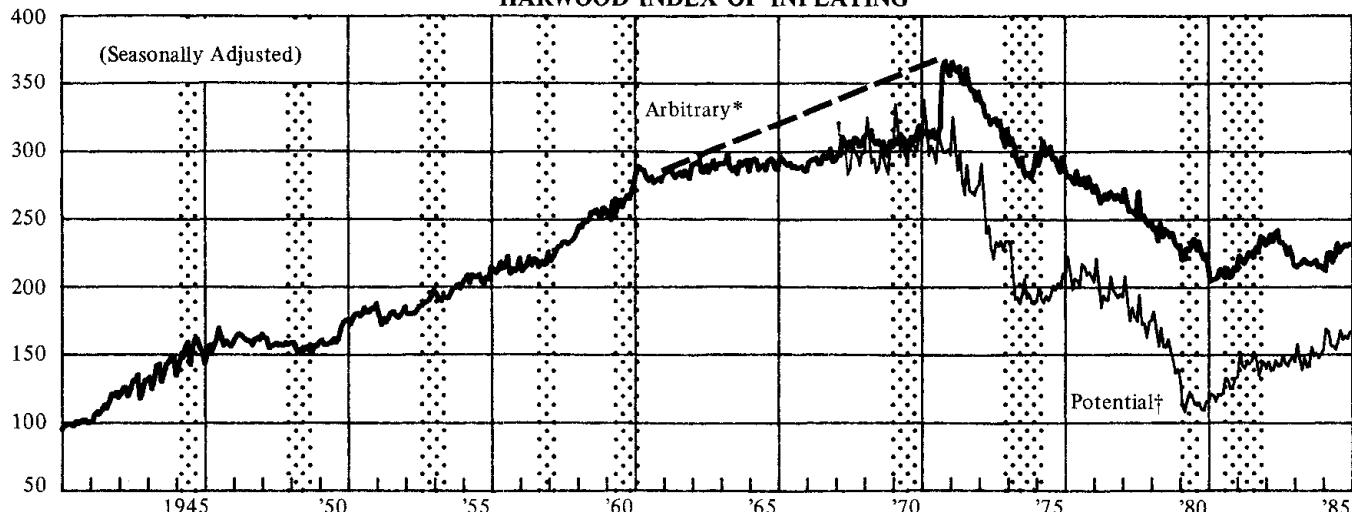
Subtraction of the amount of noninflationary purchasing media so estimated from the estimated amount of purchasing media in use (see Chapter II), provided an estimate of the *absolute* amount of inflationary (excess) purchasing media — that is, an estimate of *absolute inflating*. The Harwood Index of Inflating is a ratio (in percent) of *total* purchasing media in use to the *noninflationary* amount for the same period. It thus is a measure of *relative inflating*. If there were no inflationary purchasing media in use, total purchasing media in use would equal the noninflationary amount, and the Harwood Index would have a reading of 100.

The above-described original technique for estimating noninflationary purchasing media was continued with minor modifications until 1975. By then, major changes in banking loan practices and reporting that began in earnest in the 1960's so obscured *bona fide* commercial loans that we no longer had confidence in our technique for differentiating *bona fide* commercial loans from *reported* short-term commercial loans. Whereas reported short-term CIA loans once were almost totally automatically self-liquidating loans, by the 1960's many reported short-term CIA loans were multi-year "term" loans with less than a year remaining and other non-self-liquidating CIA loans with an original maturity of up to a year. Reflecting increasingly unsound banking practice, banking statistics no longer enabled us to estimate *bona fide* commercial loans.

After much experimentation, we discovered empirically that prior to 1965 monthly estimated *bona fide* CIA loans closely matched one-half of monthly manufacturing and trade sales. We therefore adopted and now use this series for our estimate of newly produced things offered for sale in markets (and for noninflationary purchasing media).

Our discovery of a near equality between these two series has plausible theoretical support. Inventories are a *stock* (the amount of something on hand at one point in time) and sales are a *flow* (the volume of something occurring during a period of time). Since the amount of purchasing media outstanding at some point in time is a stock, in order to estimate the portion representing inventories of things brought to markets (a stock) from the sales

Chart 9
HARWOOD INDEX OF INFLATING



* Arbitrary curve drawn on the assumption that suspension of convertibility occurred gradually between 1960 and 1971. In late 1960, the price of gold in London first rose substantially above the official "price" of \$35 per ounce. A "gold pool" of official institutions was formed in early 1961 to force it back down.

† Index level if convertibility were restored at the market price of gold at the time shown and if the "profit" from the assumed devaluation were used to retire Treasury securities held as investment-type assets by the banking system.

Note: See note to Chart 11 for unusual change from December 1980 to January 1981.

series (a flow), the latter must be converted from a flow to a stock. If over an accounting period inventories are drawn down by a *uniform* rate of sales, the *average* level of inventories equals one-half of sales over the period. This implies that *on average* sellers find that about 2 weeks' amount of monthly sales volume constitutes the optimal practicable level of inventories.

Although nonuniform sales rates, income receipts, and inventory replenishments occur in the real world, the "law of large numbers" suggests that sufficiently numerous participants (as in the modern U.S. economy) will result in *some average*. Our observations of what occurred are consistent with our conjecture.

There is no guarantee, of course, that the 1939-65 historical basis for our estimate of noninflationary purchasing media did not itself undergo after 1965 a marked institutional change along with the other aforementioned changes in the practices of bankers. Even if such had occurred, however, the *major trends* of noninflationary purchasing media almost surely would remain as estimated.

Note that this estimate of noninflationary purchasing media does *not* rely on Gross National Product (GNP) data. That series comprises the dollar value of goods (and services) in their *final* stages of processing. It is unsound to include *services* in our estimate (see footnote 2 in Chapter IV). But our estimate must include *all* stages of processing for which *money payments* are made. Manufacturing and trade sales properly includes sales at all stages of production but excludes services. The rate

of manufacturing and trade sales recently was about 30 percent larger than GNP.

Our estimates of noninflationary purchasing media are subject to a considerable margin of error. Nevertheless, we believe they provide an adequate basis for ascertaining the major *trends* of *inflating* in the United States during the past 40 years.

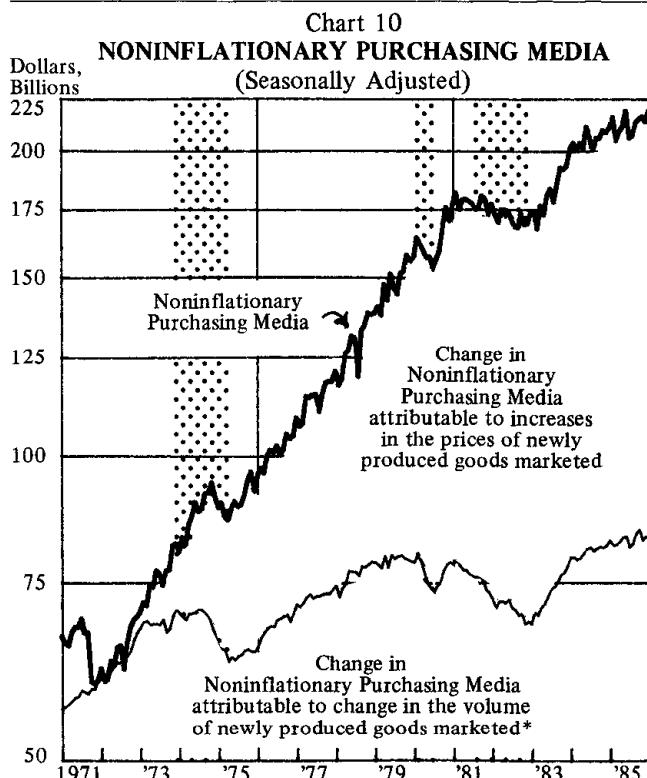
EARLIER TRENDS AND CONSEQUENCES

Our estimated amounts of noninflationary and inflationary purchasing media in use from 1941 through 1985 are shown together in Chart 4 on page 10. These series are plotted separately for the 1971-85 period in Charts 10 and 11 nearby. The Harwood Index of Inflating for the 1941-85 period is plotted in Chart 9 nearby.

As we mentioned in Chapter III, once excess (inflationary) purchasing media is in the hands of the public, it can be put to many uses, can be widely dispersed or concentrated in certain types of activities, and therefore can be manifested differently in various economic series at different times. Inflating need not foster higher general prices in any fixed relationship as to timing or magnitude. There are, however, no recorded instances of prolonged price inflation that were not accompanied by or preceded by monetary excesses. Our measures of absolute and relative inflating, therefore, are not useful for predicting the specific economic distortions that an episode of inflating will foster, but we are confident that a significant episode of inflating will foster *some* distortion(s), which subsequently will require corrective adjustment.

The "standard" view, based on changes in reported money stock and general price series, is that there was little or no monetary excess during the 1950's. Not until the mid-1960's to late 1960's was there much concern about developing monetary excesses. Our estimate of inflationary purchasing media in use (see Chart 4) and our Harwood Index of Inflating (see Chart 9) suggested otherwise, however, as they both trended rapidly upward during the 1950's and continued upward during the 1960's. But instead of fostering commodities and services price increases, the monetary excesses of the 1950's stimulated unsustainably rapid real output growth, supported substantial increases in stock prices and land prices, and fostered outflows of U.S. dollars to other countries. The fact that the Bretton Woods international monetary system broke down in 1971 because of dollar distrust is substantial evidence that U.S. monetary excesses during the preceding years were more severe than indicated by the widely reported money and prices series.

The timing of the Harwood Index peak in 1971 coincided with the removal of the U.S. official stock of monetary gold from our calculation of noninflationary purchasing media in August of that year, when the "gold window" was officially closed. One might reasonably argue that earlier



* This is an index with September 1971 (the first month after the United States "closed the gold window") set at 59.0 to equal the total noninflationary amount then. This was done to show, for the subsequent years, the changes in noninflationary purchasing media attributable to volume changes and to price changes.

Government constraints on gold outflows limited the amounts of gold continuously offered to foreigners and thus that the closing of the "gold window" was not a sudden event. If that was the situation, the increase of the Harwood Index to its peak would have been more gradual, and the peak might have occurred slightly earlier. (See "Arbitrary" curve on Chart 9.)

In spite of the possibility that the level, timing, and peak of the Harwood Index might not be totally accurate, the end of convertibility of the dollar clearly was related to the accelerated decline in the purchasing power of the dollar during the 1970's. This is abundantly evident in Chart 1. The end of convertibility also had implications for calculation of the Harwood Index.

In the absence of a functional official "price" for gold — that is, a price at which transactions occur — viewing the noninflationary dollar value of things offered in markets as their gold-exchange value became meaningless. Instead, the physical volume of newly produced things offered in markets had to be valued at current (and changing) paper-dollar prices. The result is that the amount of noninflationary purchasing media now changes with the volume of newly produced things offered and with the dollar prices of those things.

Charts 10 and 11 have equal vertical log scales. Log scales show equal proportional changes as equal distances, so that a more steeply rising curve indicates a more rapid rate of change. Chart 10 reveals that noninflationary purchasing media increased sharply during the 1970's not because of a sharp rise in the volume of newly produced goods offered in markets but because of sharply rising fiat-dollar prices of those goods. Noninflationary purchasing media rose faster during the 1970's than did inflationary purchasing media (Chart 11). Consequently, although absolute inflating continued to increase, relative inflating trended downward during the 1970's (Chart 9).

Consistent with our earlier comments about the many directions that excess purchasing media might flow, we interpret the sharp *price inflation* of the 1970's as the inevitable effect of long-continued postwar absolute and relative inflating. While most observers interpret the rapid price inflation of the 1970's as indicative of the worst of inflationary conditions, we see a salutary side to it. Inflating that had been largely unrecognized, broke into the open. This heightened inflationary expectations, and it induced many real economic adjustments appropriate to economic alternatives during inflationary times. Some examples may clarify this point. Savers learned not to be suckered into investing in fixed-dollar securities whose nominal rates of interest did not even compensate for the

dollar's loss of buying power. So savers demanded higher nominal interest rates. Other savers learned the age-old store-of-value function of gold. Businessmen learned to differentiate between nominal-dollar revenues and profits and their "real" counterparts; thereby, they learned to avoid the trap of overexpanding because sales revenue was up.

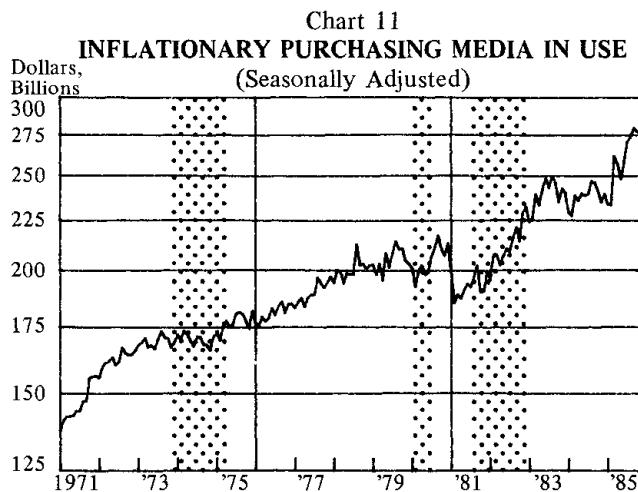
Although recognized inflating may be less damaging than unrecognized inflating, it nevertheless hampers economic efficiency and impedes improvements in economic welfare. Inflating and its consequences are so unpredictable that virtually all long-term commitments become a gamble. The time horizon of investors, therefore, is shortened. Potentially higher-return longer-term capital projects may be sacrificed for lower-return but shorter-term projects. Financial investors increasingly try to "trade the market" rather than buy and hold "solid" long-term assets. Why not gamble that way if long-term investing also is a gamble?

Then, no sooner are adjustments made for expected inflationary times, as in the late 1970's, but authorities are forced to adopt anti-inflationary policies. This induces new adjustments and changes the set of "winners" and "losers." Inflating spawns conditions that are so variable and unpredictable that economic agents inevitably are fooled into making unsound decisions, which in the aggregate become massive unrecognized macroeconomic distortions.

MORE RECENT TRENDS AND POSSIBLE CONSEQUENCES

The long downward trend in relative inflating ended in late 1980. It subsequently trended sharply upward to about mid-1983, trended downward again to early 1985, and sharply upward again to the end of 1985. In 1985, absolute inflating also increased sharply.

The direction that this latest inflating — relative and absolute — will flow, and the distortion it will foster in the near term, are not predictable. Many economic conditions suggest that rapidly accelerating price inflation is not likely in the near future. These conditions include, among others, the hesitating domestic business expansion, continuing low labor-cost pressures, the recent sharp decrease in crude oil prices, the apparent international surplus of many basic commodities, subdued inflationary fears, and continuing intense foreign competition



Note: Sharp drop from 12/80 to 1/81 due to nationwide introduction of NOW accounts in 1/81 and to differences in the way such accounts are treated in official M1 and in our purchasing media in use series (see Chapter II). In the absence of that effect, the decrease from 12/80 to 1/81 would have been about \$5 billion instead of the \$13.5 billion shown.

in spite of the dollar's decline against some major trading-partner currencies during the past year. It is quite possible, therefore, that this most recent increase in inflating will be accompanied by apparently pleasant results — namely continued real economic expansion, low price inflation, and "booming" securities markets.

Yet, one does not have to delve deeply to find conditions that might set off a major economic disruption and price inflation quite quickly. Among them are: the load of bad loans held by the U.S. banking system and the need for authorities to bail out the banks; the failure of Congress to in fact control Government spending; the tightening domestic labor market; the weakening dollar, with its potential for foreign investors to pull out their funds from U.S. investments and force U.S. authorities to pump up domestic reserves; and inflationary fears that, while subdued, are still on alert.

Although the specific distortionary effects of the current episode of more rapid *inflating* are unpredictable, this inflating seems bound to foster harmful distortions, greater economic variability, higher uncertainty, and generally more troubled economic times. And still further inflating seems a virtual certainty as long as the U.S. dollar is a nothing, fiat monetary unit and as long as the supply of purchasing media is not determined by sound commercial banking practice.

Appendix A

FINANCIAL CLAIMS: PURCHASING MEDIA OR NOT?

BECAUSE in common usage there now are many referents for the name "money," we attempt to avoid using "money" whenever that is practicable. Our substitute name for transactions money – that is, things *generally* used in final payment of purchases and debts – is "purchasing media." We discuss below the types of financial claims sometimes referred to as money that may or may not be classified as purchasing media. See Table 3 on page 8 for the components of *official* monetary aggregates and Table 4 on page 10 for the components of AIER's purchasing media in use series.

Currency in circulation. Currency in "circulation" includes the paper notes issued by Federal Reserve banks and the U.S. Treasury, and the coins minted by the U.S. Treasury that are possessed (held) by the public. Obviously these things are generally accepted in final payment of purchases and debts and, therefore, are a type of purchasing media.

Demand deposits. Demand deposits are claims against commercial banks that can be transferred to third parties on written order of the claim holder (depositor). These accounts commonly are referred to as checking accounts. Transfer arrangements such as telephone orders of withdrawal do not essentially alter the "on demand" aspect of these claims. Inasmuch as transfers of such deposits generally are used in final payment of purchases and debts, they also are a type of purchasing media.

But what about the many instances when a seller refuses to accept a personal check? Compared with the instances when checks are accepted, the instances of refusal are small. That is, checks are *generally* accepted. Moreover, refusal to accept a personal check usually does not involve a refusal to accept the transfer of a demand deposit claim *per se* but a refusal to accept the *evidence* that such a transfer indeed is represented by the written order (the check).

Time and savings deposits. These deposits are claims on commercial banks and "thrift institutions" on which the claim holder receives interest but also on which the original maturity of the "deposit" is at least 7 days or on which the depository institution contractually can require at least 7 days advance notice before it has to pay. In practice, depository institutions do not require this advance notice and thus the funds are immediately avail-

able. However, also in practice, claims on time and savings deposits *are not generally used* in final payment of purchases and debts. Holders of these accounts usually (if not always) first convert them to currency or checkable deposits for making payments; they do not usually make a written order to the savings institution to transfer their claim to a third party. Thus, time and savings deposits are not a type of purchasing media.

By regulation, an account would be classified as a savings account even if it permits the holder up to six preauthorized, automatic, or other third-party transfers per month, of which up to three could be checks.

Certificates of deposit (CDs). CDs are claims on funds deposited at a commercial bank for a specified time period at a specified interest rate. Many CDs are "negotiable," that is, the instrument evidencing the claim on the bank can be transferred to someone else. And many such claims are indeed transferred in practice, which enables the original CD holder to convert this type of claim to, say, an existing demand deposit claim. Of course he then could use the demand deposit claim in final payment of a purchase or debt. But this does not qualify the CD as purchasing media; it is not generally used in final payment of a purchase or a debt, just as savings deposits are not so used.

U.S. Treasury bills. Some analysts contend that because Treasury bills can be sold easily (they are "liquid"), they are much like "money." However, like CDs, these debt securities generally are not used in final payment of purchases and debts, but first must be converted to pre-existing currency or demand deposits for such purposes. Thus, Treasury securities are not purchasing media.

Credit cards. Credit cards represent an open line of credit made available to the card owner by the card issuer. Because credit cards generally are used for buying things, some analysts claim that they have the same monetary potential as currency or demand deposits. However, as many readers no doubt realize when the bills for their credit purchases arrive each month, the use of credit cards does not involve final payment for the card holder. The merchant who accepts a credit card (or his bank) must present the credit invoice to the card issuer in order to receive final payment, and he generally receives final payment by means of a demand deposit transfer drawn against the credit card issuer in favor of the seller. Later, the credit card

issuer demands final payment from the credit card holder, and final payment is made by transfer of currency or a claim on a demand deposit. Credit cards are not classified as purchasing media.

Traveler's checks. Liability for *bank-issued* traveler's checks already properly is included in official demand deposit figures. These liabilities are used as means of final payment *from the point of view of the buyer of things* and thus have purchasing media status. *Nonbank-issued* traveler's checks, such as those of American Express Company, also are properly included in official money stock measures. As are bank-issued traveler's checks, those issued by nonbanks are indeed widely used to make final payments for purchases.

Negotiable orders of withdrawal (NOW accounts). In early 1976, savings banks in the northeast began issuing third-party transferable claims on deposits called NOW accounts. Since early 1981, NOW accounts have been offered nationwide. Claims on these accounts are transferred at the written demand of the claim holder and are generally accepted in final payment of a purchase or debt. In this sense they are like demand deposits and can be used as purchasing media. However, the *total* of NOW liabilities at both savings institutions and commercial banks are not purchasing media. Large portions of interest-bearing NOW accounts are not used as transactions balances; instead, they serve as savings-type balances. Comparative deposit turnover data during the 1976-79 New England experience with NOW accounts indicated that their annual usage was only about one-third that of household checking accounts and between the turnover of household checking accounts and that of time and savings accounts. Inasmuch as similar results were obtained for Automatic Transfer of Savings (ATS) accounts, credit union share drafts, and demand deposits at mutual savings banks, we count only one-third of the total of such "other checkable deposits" as purchasing media. A report in the *Federal Reserve Bulletin* for February 1986 (pp. 87-108) concluded that "[o]ther checking accounts . . . have a turnover rate less than one-half that of the main checking account." That is consistent with our estimate.

Super NOW accounts, first permitted in January 1983, have transactions and savings uses similar to NOW accounts. Credit union share drafts also have these dual uses.

Repurchase agreements (RPs). This type of financial claim is a curious form of purchasing media. It differs from other forms in that the liability itself is not used as means of final payment but rather represents purchasing media that simply do not appear in the official M1 money stock. Pur-

chasing media status pertains not to long-term RPs but only to "overnight" and "continuing contract" ones. These arise when a corporate treasurer, upon completion of the day's payment activities, arranges with his bank to buy Government securities from the bank's own portfolio in lieu of holding the transactions balance in the company's demand deposit. This reduces that demand deposit to zero before the end of the day, which is when such deposits are required to be counted for reports to the monetary authorities for reserve requirements and for money stock statistics. The Government securities are repurchased by the bank the next morning at a slightly higher price. The difference in price effectively constitutes interest, and the proceeds replenish the corporation's demand deposit for use during the day until the next repurchase agreement is automatically entered at the close of that business day. The effective interest payments on this arrangement are advantageous to the corporation, which otherwise would receive either less interest or no interest. The bank also finds this "managed liability" advantageous compared with other types of accounts, because no reserves are required for domestic RPs.

Eurodollars. Two related but distinct purchasing media considerations apply to Eurodollars. First, a "managed liability" arrangement between a corporate treasurer and a bank exists which is similar to the aforementioned RPs. This is *overnight* Eurodollars issued by offshore branches of U.S. banks to *U.S. nonbank customers*. (Eurodollars simply are any dollar-denominated bank deposit in a bank not located in the United States, and Eurocurrency is any bank deposit denominated in a foreign currency.) This arrangement, like RPs, pays interest to the customer and reduces his domestic demand deposit balance to zero by the end of the day, when official money stock data are collected. Again, although this "nondeposit liability" is not directly used as means of final payment, it represents purchasing media that are so used but simply escape reporting as such.

Second, these *overnight* Eurodollar liabilities of offshore U.S. banks to U.S. nonbank customers should not be confused with the purchasing media status of the entire trillion-dollar world Eurodollar market, or even with the overnight portion of that total market. Inasmuch as those overnight Eurodollars generally facilitate foreign trade, they do not affect U.S. spending any more than do foreign currencies. Therefore, they should not be included in the U.S. stock of purchasing media.

Money market mutual funds (MMMFs). This is a type of mutual fund that invests solely in short-term credit instruments, such as Treasury secu-

rities, CDs, commercial paper, etc. MMMFs developed as an alternative for small investors or savers to savings accounts at banks and thrift institutions when maximum interest rates payable by those institutions were far below market rates. MMMF accounts pay daily-changing, market-related interest rates. Although MMMFs offer limited *check-writing* privileges, which suggests that they are a form of purchasing media, they in fact have been little used as means of final payment. Turnover activity of MMMF deposits has been less than even that of time and savings accounts. These figures suggest that MMMF balances are nearly all saved funds, not transactions funds.

Money market deposit accounts (MMDAs). First offered in December 1982, MMDA balances have increased rapidly, totaling slightly more than \$500 billion at the end of 1985. MMDAs, offered by depository institutions, have limited check-writing (a maximum of three per month) and other transfer capabilities (a maximum of six per month, including the three check transfers). For households, the turnover rate of MMDAs in mid-1984 was less than that of savings accounts.¹ This suggests that MMDA

balances, like those of MMMFs, are saved funds, not purchasing media in use.

Cash management accounts at brokerage firms. Major stock brokerage firms now offer broad financial accounts that have a check-writing service. These accounts vary from firm to firm, but they require a high (relative to other checkable services) minimum amount of investable funds and minimum amount per check. If funds held in the immediately available portion of the account are insufficient to pay the checks, the brokerage house automatically debits the customer's margin account. In a sense, then, the securities that serve as collateral for the margin account can serve as purchasing media. No doubt the proportion of all payments made in the country in this way is minuscule at this time and, therefore, insignificant in its effect on the economy. The availability of this type of payments medium, however, indicates the difficulty of accurately estimating the amount of purchasing media in use.

¹ "The Use of Cash and Transactions Accounts by American Families," *Federal Reserve Bulletin*, February 1986, p. 91.

Appendix B

HOW BANKS CREATE PURCHASING MEDIA

NOT all institutions that now issue checkable accounts are commercial banks in the United States, and not all commercial banks are members of the Federal Reserve System. The Monetary Control Act of 1980, however, mandated *uniform* reserve requirements for all depository institutions. Monetary policies are implemented through these depository institutions, but the effects spread throughout the money and credit system because of business ties that depository institutions have to nondepository institutions and linkages among all aspects of the economy. For ease of presentation, the description here of the process by which the checkable-deposit component of purchasing media is originated and canceled is in terms of commercial banks that are members of the Federal Reserve System, but it applies to all depository institutions that issue checkable deposits.

Member banks are required to maintain deposits with the Fed (or cash in their vaults) equal to a minimum percentage of their deposit liabilities.¹ These deposits (plus vault cash) are called reserves, and the minimum percentage is called the reserve requirement. Reserve requirements on checkable deposits currently are 3 percent for up to \$31.7 million of "net transactions accounts" and 12 percent for the amount over that. The reserve ratio on nonpersonal time deposits with an original maturity of less than 1½ years is 3 percent, as is the ratio for all types of Eurocurrency liabilities. No required reserve ratio now applies to nonpersonal time deposits with an original maturity of more than 1½ years or to personal time deposits, regardless of maturity.

PURCHASING MEDIA CREATION INITIATED BY THE FED

Let us say that Fed officials decide to try easing monetary conditions somewhat. They usually would do so by purchasing U.S. Treasury securities in the open market, that is, from the 20 or so major Government securities dealers, among whom are a number of banks. For our illustration, assume the amount of securities purchased is \$10 million. The Fed pays for these securities by crediting the reserve account of the dealer-banks or of the clearing banks who handle the paperwork for the nonbank dealers. Those clearing banks then would

credit the demand deposit account of their nonbank dealer-customers. Assuming in our illustration that the purchase is from a nonbank dealer (Bond Dealer), the balance sheets (in thousands of dollars) of the entities involved in the transaction would change as shown below.

| <i>ASSETS</i> | <i>LIABILITIES</i> |
|------------------------------------|-----------------------------------|
| <i>Federal Reserve Bank (FRB)</i> | |
| +\$10,000 Treasury securities | +\$10,000 Reserves of CBA |
| | <i>Bond Dealer (BD)</i> |
| -\$10,000 Treasury securities | No change |
| +\$10,000 Demand deposit at CBA | |
| | <i>Commercial Bank A (CBA)</i> |
| +\$10,000 Reserves at FRB | +\$10,000 Demand deposit of BD |

One result of this transaction was an immediate increase of \$10 million in purchasing media — the increase in the demand deposit (checking account) liability of the commercial bank (CBA) to the bond dealer (BD). Just so easily are purchasing media created. The demand deposit increase of the bond dealer is no different from any other demand deposit claim; it becomes lost in the Nation's stock of "money." This process is what is referred to by the phrase "creating money out of thin air."

What makes the creation of purchasing media possible by this process is the unique ability of the Fed simply to create monetary reserves by a bookkeeping entry. This ability is given to the Fed by the laws of the Nation, and it is made effective by the willingness of the general public (like the bond dealer) to accept demand deposit claims on commercial banks in *final payment* of an obligation (the purchase of the Treasury security). Through the commercial banks the Fed thus can convert IOUs (bonds or other legal instruments of debt) not used as purchasing media into IOUs that are so used (the demand deposit liability of a commercial bank).

If the Fed were to sell some of the securities it already owned, the opposite result would occur: purchasing media would be destroyed as the public would end up holding more IOUs not used as purchasing media (the Treasury securities) and less IOUs so used (the demand deposit balance that would be reduced when the buyer of the securities paid the Fed for the securities).

PURCHASING MEDIA CREATED BY COMMERCIAL BANKS

The creation of purchasing media when the Fed buys Government securities is only one method by

¹ Nonmembers may maintain reserve balances with a Federal Reserve bank on a pass-through basis with certain approved institutions.

which purchasing media are created. Let us follow through some other possible transactions arising from the initial purchase of securities by the Fed.

Assuming the reserve requirement on demand deposits of Commercial Bank A (and for simplicity, all other commercial banks as well) is 10 percent, at the end of the steps previously indicated, CBA would have more reserves at the Fed than required. Note in the earlier balance sheet changes that CBA's reserves at FRB increased by the same amount as its deposit liabilities increased, namely \$10 million. But with reserve requirements of 10 percent, the increase in *required reserves* is only \$1 million. The difference between CBA's actual reserves and its required reserves (\$9 million in our illustration) is known as *excess reserves*.

Commercial bankers attempt to keep excess reserves to a minimum because the Fed does not pay interest on the deposits (reserves) its member banks maintain with it. Thus, the bankers of CBA would "put to use" the excess reserves it holds. One way they would do so is described below.

When a commercial bank makes a loan, it usually does so by crediting the demand deposit of the borrower, that is, by increasing its own liabilities. In our illustration, assume Firm B (FB) borrows \$9 million from CBA. The effects on the balance sheets of FB and CBA (in thousands of dollars) would be as shown below.

| ASSETS | | LIABILITIES | |
|--------------------------------|--------------------------|--------------------------------|---------------------------|
| <i>Commercial Bank A (CBA)</i> | | <i>Firm B (FB)</i> | |
| +\$9,000 | Promissory note of FB | +\$9,000 | Demand deposit of FB |
| <i>Firm B (FB)</i> | | <i>Commercial Bank B (CBB)</i> | |
| +\$9,000 | Demand deposit at CBA | +\$9,000 | Promissory note to CBA |

Of course, Firm B would not borrow funds if it did not plan to use them; therefore, let's assume it purchases \$9 million of merchandise from Firm C (FC) and pays with a check against its account at CBA. Firm C then deposits the check at the bank with whom it maintains its demand deposit account, say Commercial Bank B (CBB). CBB then sends the check for collection to the FRB, and

Table 5
CREATION OF PURCHASING MEDIA
BY THE COMMERCIAL BANKS
(In Thousands)

| Bank | Increase in Demand Deposits | Increase in Required Reserves | Increase in Earning Assets |
|--------|--------------------------------|----------------------------------|-------------------------------|
| A | \$10,000 | \$1,000 | \$9,000 |
| B | 9,000 | 900 | 8,100 |
| C | 8,100 | 810 | 7,290 |
| D | 7,290 | 729 | 6,561 |
| E | 6,561 | 656 | 5,905 |
| F | 5,905 | 591 | 5,314 |
| G | 5,314 | 531 | 4,783 |
| H | 4,783 | 478 | 4,305 |
| I | 4,305 | 431 | 3,874 |
| J | 3,874 | 387 | 3,487 |
| Others | 34,868 | 3,487 | 31,381 |
| Totals | \$100,000 | \$10,000 | \$90,000 |

FRB pays CBB by crediting CBB's reserve account by \$9 million, while debiting CBA's reserve account by the same amount. When the check returns to CBA, CBA debits the demand deposit account of FB by \$9 million. The balance sheet entries of these transactions would be as follows:

| ASSETS | | LIABILITIES |
|-----------------------------------|--------------------------|--|
| <i>Firm B (FB)</i> | | <i>Federal Reserve Bank (FRB)</i> |
| +\$9,000 | Merchandise | No change |
| -\$9,000 | Demand deposit at CBA | |
| <i>Firm C (FC)</i> | | <i>Commercial Bank B (CBB)</i> |
| +\$9,000 | Demand deposit at CBB | No change |
| -\$9,000 | Merchandise | |
| <i>Commercial Bank B (CBB)</i> | | <i>Commercial Bank A (CBA)</i> |
| +\$9,000 | Reserves at FRB | +\$9,000 Demand deposit of FC |
| <i>Federal Reserve Bank (FRB)</i> | | <i>Commercial Bank A (CBA)</i> |
| No change | | +\$9,000 Reserves of CBB -\$9,000 Reserves of CBA |
| <i>Commercial Bank A (CBA)</i> | | <i>Commercial Bank A (CBA)</i> |
| -\$9,000 | Reserves at FRB | -\$9,000 Demand deposit of FB |

A number of noteworthy changes now are apparent. CBA no longer has any excess reserves with the FRB; those reserves were lost to it when the check of its borrower cleared the FRB. But those reserves were gained by CBB. If we consider CBA and CBB to comprise a single unit called the Commercial Banking System (CBS) and we net their transactions to this point, these are the net balance sheet changes.

| ASSETS | | LIABILITIES |
|--|---------------------------------|--|
| <i>Commercial Banking System (CBS)</i> | | <i>Commercial Banking System (CBS)</i> |
| +\$1,000 | Reserves of CBA at FRB | +\$10,000 Demand deposit of CBA to BD |
| +\$9,000 | Promissory note of FB to CBA | +\$9,000 Demand deposit of CBB to FC |
| +\$9,000 | Reserves of CBB at FRB | |

Other results now are apparent. CBS has created additional purchasing media: the demand deposit liability of CBB to FC. Thus, the original injection of \$10 million reserves into the banking system by the Fed's purchase of Treasury securities has resulted in the creation of \$19 million purchasing media. But this is not the end of the chain, because CBB now has \$8.1 million of *excess reserves*, only \$0.9 million being required (10 percent times \$9 million) to support the increase in CBB's demand deposit liabilities. CBB then could follow the path taken by CBA when it had excess reserves, namely, make loans totaling the amount of excess reserves.

The theoretical maximum increase in purchasing media and earning assets in our illustration is shown in Table 5. The original injection of \$10 million of reserves by the Fed from a purchase of Government securities from a nonbank dealer would foster an increase in purchasing media of \$100 million and an increase in bank earning assets (loans or investments) of \$90 million. Ten

Table 6
FACTORS INFLUENCING THE ADJUSTED MONETARY BASE*
Sign Indicates Effect on the Adjusted Monetary Base
(Billions of Dollars)

| <i>Monetary Base by Sources</i> | <i>Dec. 1985</i> | <i>Dec. 1984</i> | <i>Net Change</i> | <i>Percent Change in Adjusted Monetary Base Attributable to:[†]</i> |
|---|------------------|------------------|-------------------|--|
| | | | | [‡] |
| I. Federal Reserve Credit | \$204.0 | \$184.0 | \$20.0 | 106.4% |
| a. U.S. Government securities | 186.9 | 167.9 | 19.0 | 101.0 |
| b. Loans | 1.3 | 3.2 | -1.9 | -10.1 |
| c. Float plus other Federal Reserve assets | 15.8 | 12.9 | 2.9 | 15.4 |
| II. Other Factors | 19.5 | 19.4 | 0.1 | 0.0 |
| a. Treasury deposits with Federal Reserve | -3.5 | -3.4 | -0.1 | 0.0 |
| b. Gold stock plus other items ¹ | 23.0 | 22.8 | 0.2 | 0.1 |
| III. Source Base (I+II) | 223.5 | 203.4 | 20.1 | 106.9 |
| IV. Reserve Adjustment ² | 16.3 | 17.6 | -1.3 | -6.9 |
| V. Adjusted Monetary Base | 239.3 | 221.0 | 18.8 | 100.0 |
| <i>Monetary Base by Uses</i> | | | | |
| I. Adjusted Bank Reserves ³ | \$ 64.7 | \$ 58.9 | \$ 5.8 | 30.9% |
| II. Currency held by the public | 175.1 | 162.1 | 13.0 | 69.1 |

* Preliminary monthly averages of daily figures; not seasonally adjusted; our estimates from Federal Reserve Board and Bank of St. Louis data.

† Percentages do not add due to rounding.

¹ Includes SDRs held by F.R. banks, Treasury currency outstanding, Treasury cash holdings, deposits with the Federal Reserve other than Treasury deposits and member bank reserves, and other F.R. liabilities and capital accounts.

² Adjustment for reserve requirement ratio changes. Reserve adjustment computed by the Federal Reserve Bank of St. Louis.

³ Includes member bank deposits at F.R., and vault cash of all commercial banks, plus reserve requirement (see footnote 2).

million of the increase in commercial banks' assets would be in the form of nonearning reserves with the Fed. The amounts of purchasing media originated by the private banks and by the Fed and U.S. Treasury (which issues coins) are depicted in Chart 5 on page 10.

Without describing the specifics, we should alert the reader to one oversimplification in our illustration. We assumed that as the purchasing media were created with each loan, all of the funds remained in the form of demand deposits at commercial banks. In practice, the public holds funds in other forms, such as cash and time deposits. These holdings reduce the amount of reserves available to support demand deposits; consequently, the total of purchasing media actually created is less than the theoretical maximum. Currently each dollar of reserves supports nearly eight dollars of demand deposits.

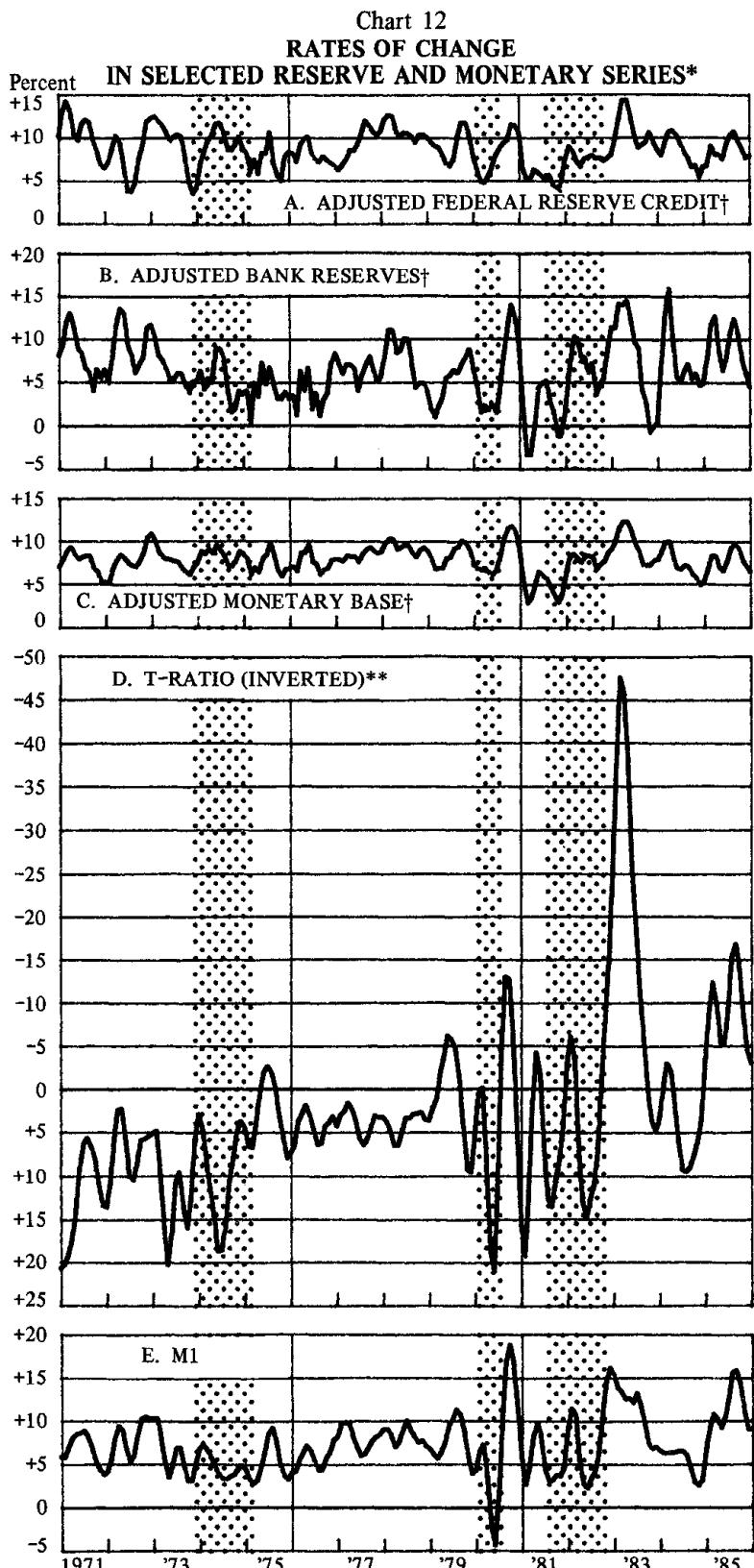
Commercial banks can create purchasing media because of their ability to convert an asset that is not purchasing media into a liability that is purchasing media. Although in our illustration we assumed the banks made loans when they had excess reserves, the effects on purchasing media would have been the same if the banks instead had ac-

quired corporate bonds, U.S. Government securities, foreign-government debt, a new building, etc. Insofar as the power to create purchasing media is concerned, the key aspect is the increase in demand deposit liabilities not the asset acquired in the process of creating the increase in those deposits.

Likewise, for the Fed. Our illustration was based on the Fed's purchase of Treasury securities. However, the results would have been similar had the Fed increased reserves of the banking system by making a loan to a member bank, by purchasing a Government agency security, or by purchasing the past due debt of a Third World government borrower. The key is that the reserve liability of the Fed is the reserve asset of the member banks.

BUT WHAT CAN THE FED ACTUALLY CONTROL?

The foregoing is merely the standard textbook account of the *basic* process of multiple expansion of purchasing media (bank deposits) against Federal Reserve liabilities. It is a simplified illustration of a complex process. In the "real world," the final outcome of Fed activity is affected by complicating factors such as "leakages" to other types of de-



* Weighted averages of 3-month percent changes at annual rates.

† Adjustment is for effects of reserve requirement and is by the Federal Reserve Bank of St. Louis.

** T-ratio is the sum of all savings-type deposits at commercial banks divided by all checkable deposits. Scale is reversed to show direction of effect on M1 growth.

Notations: Monthly data. Latest plot of 3-month average is for December, reflecting base series data through January 1986.

positives, differing reserve requirements among some accounts, and the preferences of the public. We discuss below the monetary vagaries that limit the monetary control of the Fed.

Of the three chief *reserve* aggregates — Federal Reserve Credit, Member Bank Reserves, and the Monetary Base — the Fed has the greatest control (virtually absolute control) over Federal Reserve Credit. The Fed's main instrument for effecting its policy is its open market operations. These are purchases (or sales) by the Fed of Government securities by means of the Fed making bookkeeping credit (or debit) entries ultimately to the reserve accounts of its member banks. This is the Fed's primary means of promoting monetary expansion or contraction, or of promoting "easy" or "tight" credit conditions in the Nation's money markets, or of offsetting other factors to be discussed below. The Fed has total control over its holdings of Treasury and other Government obligations, which constitute the largest component of Federal Reserve Credit (see Table 6, line I.a.).

Loans and advances to member banks from the Fed are not a right of the member banks but a privilege, although requests from member banks normally are honored nearly automatically, provided that the individual banks otherwise are in good standing. The Fed exerts considerable influence over member banks' borrowings through its second major policy instrument, namely, changes in the interest rate it charges on those borrowings (the "discount rate"). If the discount rate is below rates on alternative bank sources of funds, primarily the rate on Fed funds and short-term Treasury bills, banks are induced to borrow at the Fed and lend or invest the reserves at the higher rates. If the discount rate is above other short-term rates, it behooves banks to not borrow at the Fed or even to reduce any such borrowings outstanding. The Fed thus also has close control over its advances and loans to member banks, which comprise the second major component of Federal Reserve Credit.

"Float" arises from the Fed's check-clearing service to member banks in which checks presented to the Fed by one member bank from another member bank are temporarily credited to the first bank before collection is made from the second bank. Such "float" is a technical factor

that can create unintended changes in Federal Reserve Credit in the short run of a week or so, but is not significant beyond. Together with other controllable items ("other Federal Reserve assets"), the "float" comprises the last major portion of Federal Reserve Credit.

As Table 6 reveals, the Monetary Base by source (line III) consists of Federal Reserve Credit plus "Other Factors." "Other Factors" comprises various additive and subtractive items, including SDRs, Treasury currency, Treasury deposits, other non-member bank deposits, capital accounts, etc. Over these the Fed has limited (if any) control, but one can see that the total amount of these is small in comparison with Federal Reserve Credit. Indeed, changes in Federal Reserve Credit often are made to offset changes in "Other Factors."

The third major Fed policy instrument is changes in reserve requirement ratios. The required reserve ratio specifies the minimum percentage of a member bank's liabilities that must be held in vault cash or on deposit with the Federal Reserve, neither of which earns interest for the bank and which bankers therefore attempt to minimize. Changes in reserve requirements do not appear as an asset or liability account of the Fed, but they do affect the monetary aggregates. To incorporate this policy instrument into the reserve aggregates, a "reserve adjustment magnitude" (RAM) calculated by the St. Louis Fed is applied to Federal Reserve Credit, to the Monetary Base, and to Bank Reserves.

The total of RAM-adjusted Federal Reserve Credit plus "Other Factors" (Fed assets) equals the total of RAM-adjusted bank reserves plus currency in circulation (Fed liabilities), and this total is the Adjusted Monetary Base. The first is the "Source Base" and the second is the "Use Base."

Adjusted Bank Reserves are a liability of the Fed but an asset of the member banks. As described above, these reserves "support" the member banks' own liabilities, primarily checkable deposits and time and savings deposits.

LIMITED CONTROL OVER MONETARY AGGREGATES

Once the Fed credits "out of thin air" an amount of reserves to the private banking sector, it has virtually no control over the portion the public decides to use as currency and as checkable deposits, which together constitute reported transac-

tions money. A dollar of reserves supports only a dollar of currency, but a dollar of reserves supports a multiple amount of checkable deposits, because the required reserve ratio (see above) on checkable deposits is only a small fraction of the deposit liability. When the public changes its preference for these forms of its reported transactions balances, the Fed through open market activity tries to keep total transactions balances (currency and checkable deposits) from diverging widely from the amount the Fed would like them to total. But such offsetting actions cannot be instantaneous, which is one reason why reported changes in the official transactions-money series, M1, do not necessarily reflect Fed policy.

Further complicating Fed control of the monetary aggregates is the freedom of the public to decide the allocation of funds between checkable deposits and savings and time deposits. A dollar of bank reserves supports a greater multiple of savings-type deposits (because of no or lower reserve requirements) than of checkable deposits. But as the proportion of total reserves necessary to support time deposits increases, the proportion available for checkable deposits decreases. Therefore, a set growth rate for the reserve aggregates will not always foster the Fed's desired growth rate of M1. If the public decides to save proportionately more and the Fed reacts by increasing reserve aggregates in order to reach a target growth rate for M1, when the public reverses its decision on saving, the earlier-provided reserves may support excessive growth of M1.

Chart 12 shows the rates of change in M1, the three reserve aggregate series, and the t-ratio.² Plainly, fluctuations in those series have increased since the Fed's October 1979 announcement of its change in intermediate targets. Also evident is the absence since 1979 of a downward trend in the rates of increase in the reserve aggregates, the series most under the Fed's control. Clearly, price inflation is much diminished in early 1986 from that of late 1979 and public confidence in the paper dollar is much improved. But these favorable developments do not seem attributable to the Fed's actually taking steps to slow the rate of reserve and monetary growth. Such a slowing has not occurred.

² The scale of the t-ratio is inverted to show the direction of effect on M1 changes.

Appendix C

THE LOST ART OF COMMERCIAL BANKING

by E. C. Harwood

THE evolutionary development of human culture extended over millions of years. The written record of what has occurred is relatively short, but we know not only from the written record but also from the artifacts of earlier human societies that men acquired various arts or special skills only to lose them in subsequent centuries.

Perhaps in most instances loss of acquired arts was not a determining influence in the retrogressions, the decline and fall of an unknown number of civilizations. However, in the present century an art has been lost or nearly lost, and the consequences may have a significant influence on the breakdown of Western civilization. This now nearly lost art is the art of commercial banking.

As has been true for many developments in human culture, commercial banking evolved as men attempted to cope with their problems, in particular the exchange problems encountered in a world of rapidly increasing production. From one point of view, the development of modern science and its technological application to production forced the more or less parallel development of commercial banking. Although more and more men learned the procedures of scientific inquiry that enabled them to create the amazingly productive modern industrial society, they never did apply similarly scientific methods of inquiry to the problem of effecting the tremendously augmented number of exchanges that characterized mass production for mass markets. Commercial banking evolved as an art by a succession of trials and errors just as many other human arts have developed rather than as an outcome of scientific inquiry.

Eventually the developing art of commercial banking was crudely described and in some degree understood by its practitioners. For about a hundred years it was sustained at an advanced level of development before retrogression began. Today, almost no bankers and few money-credit economists are familiar with significant aspects of this lost art. No doubt, other lost arts that once flourished seemed durable and assured of perpetuity, but the fact is that arts once lost have not readily been recovered.

THE PROBLEM SOLVED BY COMMERCIAL BANKING

Medieval markets were like those existing today in the more primitive societies. Things were pro-

duced on a small scale, were brought to the public markets by the producers or their families or friends, and exchanges were effected by barter in large part. Even in those early markets where money was used, the money frequently was gold or silver coin, and the transactions more nearly resembled primitive barter than the modern banking and exchange procedures now widely used.

However, as the Industrial Revolution developed through the 18th and 19th centuries, mass production for mass markets became commonplace. The flow of things to organized and continuous markets became thousands of times the physical volume of things exchanged earlier. Today, as anyone who has observed modern shopping centers, supermarkets, major discount houses, and department stores can see for himself, the problem of facilitating exchanges has become enormous compared with the exchange problems of a village market centuries ago.

The modern-day problem may be summarized as follows:

a. Coming to the markets of any country such as the United States is a vast flow of merchandise, transported in ships, freight cars, trucks, and airplanes, a flow continuously in movement day and night (with intermissions for parts of the flow at times).

b. Millions of individuals and businesses obtain varying portions of this flow, for consumption or perhaps for facilitating the production of other things.

c. If the flow is to continue uninterrupted and without either accumulations of surpluses or serious scarcities in the markets, potential claimants (buyers) must be provided the claim checks (purchasing media) that will enable them continuously to buy what is offered. Neither an excess nor a deficiency of claim checks must be provided.

If you were suddenly confronted with such a problem, and had no experience with modern financial and exchange procedures, had never handled what you think of as money, the problem might well seem extraordinarily difficult. Remember that innumerable items flow into the markets: gold ingots from South Africa, manufactured watches, silver in many shapes and forms, diamonds and other precious gems, food in infinite variety from raw material to precooked TV dinners, fabrics and clothing also of seemingly unlimited variety, millions of automobiles, all kinds

of chemicals, medicines, household appliances, etc.

Also, remember that practically all of the buyers in the markets have, in some manner or another, participated in the processing efforts that have resulted in this vast flow of things. Each is entitled to his share: this man has fitted the wheels on each of thousands of cars; that woman has sewn the seams of hundreds of suits; this manager has coordinated the efforts of a few hundred thousand people engaged in processing a flow of tires to market; another man has loaned his savings to a company that provides electricity for all to use; still another, a barber, has just performed a service for Tom Jones and has received from him some of the claim checks earned by Tom during the past week, so that, although a barber sends no things to market, he also obtains the means to buy.

Let us suppose that your problem is to provide for all the potential sharers in the flow of things some means of claiming their shares in the markets. We shall not suggest that you stumble down all the blind alleys where men were frustrated in trying to solve this problem during the long evolutionary development of useful commercial banking. Instead we provide a summary description of the most advanced, most efficient stage of development that was reached in the decades before World War I.

We chose that stage of development because retrogression began with World War I as will be described in more detail later.

HOW A USEFUL MONEY-CREDIT SYSTEM FUNCTIONED

One of the obvious requirements for solving the problem as described is an accounting unit in terms of which the exchange values of all things in the markets can be determined. Clearly, claim checks valid in the markets for purchasing things being offered for sale must be denominated in some unit of measure for exchange values. Thus, the claim checks can be anonymous and available for general use in claiming (buying) anything. Unlike the situation in a baggage checkroom, those who wish to claim things offered in the markets want their claim checks to be valid for any item available, rather than valid for claiming only one thing. The buyer in a market wishes to claim the number of units of exchange value to which he is entitled rather than the specific items that he may have participated in producing or in bringing to the market.

Nevertheless, the market situation is in some respects like that in a baggage checkroom. If claim checks for baggage were counterfeited, or in some way were issued when baggage had not actually been left in the checkroom, people could be trying to claim more baggage than there was baggage to claim. Conversely, if baggage checks that had been

issued properly as baggage was received were either lost or destroyed, some baggage eventually would remain unclaimed in the checkroom.

Similarly in a nation's markets, if the claim checks (or purchasing media, or "money") were counterfeited or in some other way amounts were issued to potential buyers in excess of the amounts required to represent values of things in the markets, buyers would have far more to spend than the usual market prices of things for sale. In trying to use their excessive purchasing media, buyers would bid for relatively scarce goods, and prices would rise.

In the reverse situation, that is, if claim checks (purchasing media) were not issued in sufficient amount to represent the values of things being offered in the markets at the usual prices, prospective buyers would not be able to claim all the things offered. Then merchants would be forced to reduce prices in order to sell their stocks of things before the continuing flow of goods to market exceeded the capacity of their storerooms.

The accounting unit finally chosen by all leading industrial nations was a specified amount of gold by weight and degree of purity. In some instances, different weights of gold were designated as the accounting unit, and various names were applied by the different nations to the weights of gold they selected, such as dollars, francs, pounds, etc. Nevertheless, because all the accounting units were gold all were freely exchangeable with one another in the simple proportions of their relative weights of gold.

While these conditions prevailed, any specific number of the accounting units designated so much gold by weight. One had no need to talk about a "price" of gold in terms of the various currencies, any more than one would discuss the "price" of a bushel of potatoes in terms of potatoes. One might talk about the weight of a bushel of potatoes as being 60 pounds of potatoes; and in similar fashion one might talk about 100 dollars as being a specified amount of gold by weight, because a dollar by statutory definition was approximately one-twentieth of an ounce of pure gold.

The fact that gold was the accounting unit chosen explains neither how that choice came to be made nor how it facilitated the issue of claims for things in the markets. As for how the choice happened to be made, we shall comment here only briefly.

As human culture evolved, men discovered the usefulness of gold as an exchange medium. This was not a scientific discovery in the usual sense involving laboratory experiments and analyses; it simply was the result of unplanned experience. Men discovered the durability of gold, which nei-

ther rots nor rusts; its comparative scarcity; the fact that its exchange value for other things (or rather for the average of other things over wide areas and prolonged times) was relatively stable, as compared with the relative exchange value of anything else; even its pleasing appearance to men and women; its easy divisibility; and possibly other attributes may have been taken into consideration.

At this point we are focusing attention on some of the facts and are not attempting to describe how those facts came to exist. These are aspects of the entire problem that need not concern us here, however interesting they may be to students of economic history. The fact is that gold was the unit of account for modern industrial civilization.

We turn now to a description of the commercial banking procedure that issued claim checks representing things in the markets, retired those claim checks from circulation as things in the markets were sold, and issued new claim checks to represent the new things coming into the markets. These procedures had to occur in order to facilitate the huge volume of exchanges essential to the orderly functioning of a modern industrial society.

At this point, one must first realize that gold held in the banking system was one of the things continually offered in a nation's markets. As gold was brought to the banks, paper currency was issued to represent it, or additions to individual checking accounts were made to represent the gold; i.e., to the account of the man who deposited gold was added, by a bookkeeping entry, the appropriate number of gold accounting units (in the United States, dollars). These purchasing media, i.e., currency or checking accounts, could be used by the holders at any time to claim gold from the banks, that is to buy the gold in that segment of the nation's markets.

The commercial banks also created claim checks (purchasing media consisting of currency and checking accounts or demand deposits) representing things being shipped to and offered in the nation's markets. The procedure formerly more widely used is somewhat easier to understand.

As a manufacturer shipped completed things to market, he would prepare a document describing the shipment, take it to his bank, and borrow purchasing media that, in practical effect, represented the things en route to market. The bank made the loan by crediting an appropriate amount to the checking account of the manufacturer, but this amount was *not* deducted from other checking account liabilities of the bank. Thus, new purchasing media were created and were placed in circulation when the manufacturer used the addition to his checking account to pay wages, salaries, suppliers, and other costs of processing the things sent to

market. (As the things were sold, the receipts from sales were used to repay the bank loan by having the amount deducted from the manufacturer's account. Thus the purchasing media created for temporary use were withdrawn when their purpose had been served.)

Those who received the newly issued purchasing media from the manufacturer then could choose whatever they wanted that the markets offered. Also demanding things in the markets were those individuals who had purchasing media representing gold in the banks. Everyone who had purchasing media at his disposal could buy anything he chose in the markets including the gold continually being offered by the banks, which was one segment of the entire market.

A brief digression is necessary at this point, because the procedure described above has been modified in recent decades as mass production has developed on a broader scale and now occurs almost continuously throughout the year. For example, automobile manufacturers ship cars to market practically every business day except for the few weeks each summer when plants are closed for the changeover to new models. Preparing new sets of documents nearly every day for all shipments for use as a basis for bank credits would be unnecessarily time-consuming. Consequently, a different procedure has been developed.

The automobile manufacturer arranges with commercial banks for a "line of credit" and gives a promissory note that may be paid off only once each year during the model changeover period when no cars are en route to markets. Thus a series of borrowings continually being repaid as cars are sold is replaced by a single borrowing resulting in the creation of purchasing media that remain in circulation as long as the flow of cars to markets continues. Instead of using the receipts from today's sales of cars to pay off the note secured by the bill of lading for the shipment, the receipts from today's sales are used by the manufacturer to finance his next shipment. (Whether the time intervals involved are daily, weekly, or monthly depends in part on customary timing for the payment of wages, salaries, dividends, bills for materials, etc.)

Clearly, the art of commercial banking requires knowledge about many aspects of production and exchange. The banker must be an expert judge of financial statements and must know the customary production and shipping procedures of those for whom he creates new purchasing media by discounting their notes. He also needs to have some knowledge of market prices, although much of this information is available in the records of billings by the processors of things being sent to or in the markets.

POTENTIAL ERRORS IN JUDGMENT

The commercial banker also must have a sound basis for judging prices. Inasmuch as gold by weight was the accounting unit when the gold standard was in general use, as it was before World War I, prices of all things except gold were quoted in terms of gold. For example, at that time, "dollar" was simply another and shorter name for about one-twentieth of an ounce of pure gold. Today, "dollar" is a fictional unit, and judging prices quoted in it is a nightmare.

Errors by commercial bankers in judging the prices of things that are represented by new credits (by newly created purchasing media) could have disturbing repercussions. If, because of overoptimism about prices generally, the bankers created so much new purchasing media that prices in the United States increased in relation to prices for similar things elsewhere in the world, some potential buyers would buy in foreign markets. In that event, the banks would have had to send gold abroad, because a foreign holder of U.S. purchasing media (or of claims on it) would buy the relatively cheapest thing available in U.S. markets, which at that time would be gold.

The outflow of gold would reduce the purchasing media in the United States representing gold and thus would reduce somewhat demand for other things. Prices of most things would fall, and the commercial bankers' error attributable to overoptimism perforce would be corrected. A cumulative distortion attributable to errors of overoptimism would seem to be highly improbable, provided the basic principle of sound commercial banking were followed. However, major errors of a different type have created increasingly greater distortions that have led to periodic breakdowns of the money-credit system.

SAVINGS AND INVESTMENT

As commercial banking developed, especially in the United States, two quite different functions have been performed by the same institutions. In addition to the commercial banking function already described, most banks performed an investment function, accepting saved purchasing media and investing it.

Savings are purchasing media that the original holder decides not to spend himself; instead he requests the bank to invest it for him and pay him interest on his savings account, sometimes called a time deposit. The bank invests such purchasing media by lending it to a borrower who perhaps is buying equipment for his factory or to a borrower who may desire to buy a new car or for some other purchase. Thus, the purchasing media (currency or checking accounts) are used by someone to buy

things in the markets although the original recipient of those purchasing media chose not to buy but to save. He acquires a credit to his savings account or time deposit, which shows that he is the owner, indirectly, of whatever investments the bank has selected, such as bonds, mortgages, installment loans, etc.

The borrower from the bank in the savings-investment transaction is *not* at that time sending to or otherwise offering things of equal value in the markets to be sold. He does *not* desire purchasing media so that he may distribute it to employees and suppliers who participated in preparing things *for* the markets. His desire is to claim things *from* the markets, either equipment for his factory, or a new car for personal use, or any of the multitudes of other things available, such as new bricks for construction of a factory, etc. Consequently, the bank should not create new purchasing media for such a borrower but should lend him purchasing media already in existence that some present owner or owners save and deposit in the bank.

Probably because the same banks have been performing two functions, each of which involves lender-borrower transactions, similar forms (such as promissory notes), and related procedures, many bankers have confused the two functions. In the United States the "wildcat banks," usually small institutions in more or less remote areas, so inexplicably confused these two functions that they not only created new deposits (by discounting notes and crediting the proceeds to checking accounts) for typical commercial purposes but also they followed the same procedure and created new checking accounts when discounting mortgage notes. In the first type of procedure, the new purchasing media created represented the exchange value of things en route to or being offered for sale in the local markets; however, in the second the new purchasing media represented things (such as land, factories, or consumer goods) not being offered by the borrowers for sale but on the contrary being removed by them from the markets.

Perhaps the clearest example of the confusion between commercial and noncommercial banking is provided by the financing of automobiles in or en route to markets in contrast with consumer installment borrowing to purchase a new car. The important distinction that makes all the difference between sound and unsound commercial banking is:

a. When an automobile manufacturer borrows newly created purchasing media and distributes them among employees, suppliers, and others, he is arranging for those potential buyers to obtain their shares (in dollar value) of things in or en route to markets.

b. When an installment buyer arranges to pur-

chase a car, he is *not* claiming a share corresponding to his participation in producing things for markets, he is claiming someone else's share. James Brown can properly do that provided John Doe is willing to lend to James Brown the share that Doe's purchasing media (currency or checking account) proves he is entitled to claim. Such an arrangement usually is effected via the savings-investment procedures with a bank as intermediary. If the bank creates new purchasing media for James Brown to use instead of arranging a loan from John Doe or others, the result will be more purchasing media available to potential buyers than the corresponding value of things in or en route to markets.

Thus, one can see that a bank's lending transaction may reflect additional things offered in the markets *or it may not*. If it does, creation of new purchasing media (for use until retired by repayment of the loan by the seller) is sound commercial banking. If the lending transaction does *not* reflect *additional* offerings in the markets, it should be financed by the savings-investment procedures.

When the borrowers from "wildcat banks" attempted to buy, they discovered that merchandise was scarce; they bid prices higher and higher for the available things. Soon, those having purchasing media tried to buy more cheaply in more distant markets. The sellers in those markets did not wish to buy most things in the local markets but used their claims to demand gold from the "wildcat banks," which then were unable to meet their obligations and collapsed.

This disastrous practice has been repeated again and again in human experience. Another notorious instance was that of the Scottish banks, of which a multitude collapsed after similarly neglecting to apply what might be called the basic principle of sound commercial banking.¹

Finally, the lesson was learned. During nearly a century prior to World War I, the leading English banks applied the basic principle of sound commercial banking most of the time with outstanding success. The basic principle became more widely understood and applied among industrial nations. Even U.S. bankers, who were "slow learners," embodied this basic principle in the original legislation for the Federal Reserve System in 1913. The Federal Reserve banks originally were permitted to rediscount for the member banks only commercial paper directly tied to the volume and value of things flowing to markets. Such widespread appli-

cation of the basic principle of sound commercial banking marked the farthest advance achieved by the human race in the evolutionary development of a money-credit system that could serve a modern industrial society.

RETROGRESSION

During World War I the prolonged evolutionary development ended, and retrogression began that has continued to date. Perhaps the decisive influence was the political decision by each leading combatant to finance the war by inflating. This procedure was not justifiable on economic grounds (as Napoleon had demonstrated a century earlier), but apparently it was politically expedient. The basic principle of sound commercial banking was simply disregarded when the governments used the various banking systems to monetize government debt. Not only the central banks but also the commercial banks generally were stuffed with government promissory notes of short and long duration, the latter called bonds, in exchange for credits to the checking accounts of governments. As the new purchasing media or claim checks were used to buy things in the markets, things already represented by other purchasing media in use, demand exceeded supply at the original gold-exchange values. This was inflating, and of course prices rose.

During the 1920's, similar inflating occurred by means of the overexpansion of private debt. The gold-exchange-standard experiment then underway facilitated nearly simultaneous inflating in most industrial nations by the double-counting of gold reserves. When the credit bubble finally burst, the aftermath was the worldwide deflation and depression of the early 1930's.

Before World War II, the Keynesian notion that perpetual prosperity could be sustained by perpetual inflating was applied. It was continued through World War II, and thereafter it was applied on an increasing scale. The basic principle of sound commercial banking was forgotten. Perpetual inflating became the new way of life.

As the currencies of several leading nations deteriorated, that is, as prices generally rose at increasing rates, gold was demanded from the banking systems. After the gold held by U.S. banks had decreased to only 40 percent of the amount held shortly after World War II, the pretense that the dollar still was a unit of gold was abandoned in 1971.

No longer was gold by weight the accounting unit of all leading industrial nations. The "governor" of modern banking that had made possible dynamic equilibrium was abandoned. The depreciating paper currencies provided no standard of value.

¹ Ed.-Lawrence H. White in *Free Banking in Britain* (Cambridge University Press, 1984) presents substantial evidence that Scottish banking in the 1700's and 1800's was not nearly so defective as portrayed in most history of banking accounts.

From then on, lacking both a warning signal in the form of an outflow of gold and any definite restraint on the expansion of purchasing media, bankers based commercial loans on current inflated prices and made other loans and investments at similarly inflated prices. All increases in wages and other prices were validated by more and more increases of purchasing media by the central banks and the other commercial banks. Thus all the leading industrial nations became trapped in an inflation spiral of ever-increasing wages and other prices, in other words, a spiral of depreciating currencies. For this situation there is no certain end short of complete depreciation of the currencies,

depreciation to the point that currencies no longer are used to effect exchanges.

From time to time during a prolonged inflationary spiral temporary setbacks occur. Overspeculation in various aspects of the economy, such as building construction in major cities or excess tanker construction, may be followed by recessions or even more severe depressions. Nevertheless, in the absence of the gold governor or any other sound basis for judging comparative exchange values, the inflationary spiral continues as long as the banks create more inflationary purchasing media to finance government deficits and/or excessive private borrowings.

Appendix D

PLANS FOR INTERNATIONAL MONETARY CONTROL

SEVERAL plans to create an "international monetary management system" have received prominent notice following last spring's meeting of the Trilateral Commission in Tokyo, last summer's Seoul IMF-World Bank meeting, the September "Group of Five" deliberations, and November's privately sponsored "Congressional Summit on Exchange Rates and the Dollar" in Washington, D.C. The proposal that so far has gained the most media attention (via the Seoul talks and the "Congressional" conference sponsored by Congressman Jack Kemp [R, NY] and Senator Bill Bradley [D, NJ]) would involve forcing "adjustments" in exchange rates by means of a combination of Keynesian, monetarist, and supply-side prescriptions. These presumably would be administered by some as yet vaguely described "international manager" in order to "coordinate" policies among the major industrial nations. To date, there have been no specific descriptions of how such a management authority would enforce the measures — or what criteria would be applied to formulating the policies.

However, insofar as they are at all specific, the procedures described for "adjusting," say, the yen/dollar exchange rate strongly suggest that they were conceived during moments of unrestrained fancy. For the plan to work as proposed, the United States would have to reduce its budget deficit and bring down dollar interest rates through a combination of budget cuts, tax hikes, and prescient control of the U.S. "money supply." It scarcely needs mentioning that none of these objectives, which have been labeled "first priority" concerns by fiscal and monetary authorities, have come even close to being achieved. Be that as it may, at the same time Japan would have to go on a Keynesian spending spree — contrary to Japan's efforts to reduce its government deficit. And such spending would have to be coupled, according to the proposal, with "supply-side" initiatives to stimulate domestic investment — which presumably would include lower tax rates on investment income and deregulation of Japanese financial markets.

The related interim policy program reportedly now being drafted by the U.S. Treasury Department would rely upon a mechanism of "target

zones" for exchange rates. According to this plan, currency interventions similar to the recent Group of Five program would be the means of management. These would be assisted by frequent consultations among the industrial nations to determine the "target zones" and agree on internal fiscal and monetary policies.

Other proposals would place direct restraints or prohibitions on international capital flows. Professor Dietrich Fisher of New York University recently resurrected a "proposal for world monetary reform" that had been advanced by Nobel laureate James Tobin more than a decade ago. Fisher argues that the primary difficulty with floating exchange rates has been the enormous "short-term speculation in currencies," which has resulted in "excessive volatility" in the relative valuations of various national currencies. Fisher says that, "The solution is a small tax on every currency exchange," and conjectures that a "1 percent tax would probably work just fine." According to this line of reasoning, short-term swaps of "billions of dollars of idle cash" to take advantage of short-term fluctuations would be more costly and therefore would be discouraged.¹

The most severe proposal for exchange-rate management has come from one of the participants in the 1985 "Plenary Conference" of the Trilateral Commission in Tokyo last April. The proposal of C. Fred Bergsten, U.S. Assistant Secretary of the Treasury for International Affairs in the Carter Administration, goes beyond the hoped for "voluntary coordination" expressed in the Seoul IMF meeting and in the Group of Five discussions. He says other options are available to domestic and multinational authorities that, in his words, "might have a chance of heading off an enormous trade conflict between the United States and Japan." The most "dramatic step," he asserts, "would be to simply stop the capital outflow [of yen from Japan] for a few quarters."

Insofar as his remarks suggest how far some international planners seem to be willing to go to countermand market decisions, they warrant quotation at some length: "We know," he says, "that administrative guidance continues. One could tighten the administrative guidance to zero, and simply require the large institutional investors — the insurance companies, the pension funds, the banks — to stop the capital outflow for a few months. That

Note: Except for small editorial changes, this appendix appeared as "Exchange-Rate Fantasies" in our *Research Reports* dated December 16, 1985.

¹ *The New York Times*, November 26, 1985.

certainly could be done; it has been done in the past; it is the one step that could be implemented quickly; it would have an enormous effect in the exchange markets very rapidly; and *it would not even have to be announced.*² [Emphasis added.]

Despite their diversity, the above prescriptions all depend on a number of similar, though fundamentally flawed, assumptions. Perhaps most obvious, the initiative to "target" exchange rates and "coordinate" the fiscal and monetary policies of many countries relies on the assumption that people occupying political positions receive information and have incentives that enable them to improve upon the economic outcomes that derive from private decisions and are reflected in private markets. This persistent belief seems not to be weakened even though individual nations *without exception* have failed in the past to make similar plans work on the domestic level. "Somehow" a supranational entity is supposed to be able to do it on an international level. Indeed, in this view, those domestic failures serve as a reason for empowering some as yet nebulous "international manager."

We do not see how such a system of "management" possibly could work outside of some type of coercion. Even in the case of domestic interventions, any monetary "target" that is designed to counter prevailing market sentiment will advantage some participants and disadvantage others. Those disadvantaged by the "adjustment" invariably — and justifiably — feel wronged and seek redress through the political process. Often, they have led bitter internal struggles, which sometimes have erupted in violence, even in civil war. In the international arena, the stakes are much higher and the potential disruptions even more severe.

In the present situation, for example, some interests in Japan already are protesting the injury done to them by the increase in the value of the yen against the dollar that has followed the late-September Group of Five intervention program. *The Wall Street Journal* (November 18, 1985) reported that business executives are complaining about falling profits; bankers say that higher interest rates will raise the cost of funds, posing problems for mortgage rates and corporate spending for plant and equipment; and Japanese government officials warn that higher interest rates will make it more costly to fund Japan's huge budget deficit. For some individual investors in bond-futures, the rise in the yen against the dollar produced disastrous losses — and they, too, are crying foul.

Such responses illustrate one of the central prob-

lems associated with "managing" exchange rates — namely, ascertaining and setting the "proper" exchange rate at any given time. Currently, advocates of exchange-rate management are virtually unanimous in the view that the dollar is "overvalued." But as the reaction of many producers and consumers who have benefited from or adjusted to market conditions suggests, views on exchange-rate matters will necessarily differ depending on one's position in the market. In fact, from the perspective of market transactions, there is no such thing as an "overvalued" or "undervalued" currency. A currency simply is *valued* according to the market. The attribution of normative values to a currency's relative worth presupposes political, not market, criteria.

In the present situation, the dollar may be at high levels in relation to some prior periods, but that does not mean that it is "overvalued." If past experience provides any lesson, it is that trying to second-guess the market invariably produces distortions and political resentments. These resentments in turn generate political pressure in opposition to the "target" or "plan" — which culminates in the abandonment of one plan for something else that would change the "winners" and "losers." Political influence becomes more important to financial success than economic perception, sound business management, or the provision of high-value products and services for consumers.

Plans such as Professor Fisher's, which would impose constraints on currency exchange transactions, also ignore market actualities. Fisher assumes that "speculation [in currency markets] exaggerates needed adjustments and causes the unwanted instability in exchange rates." Hence, he would seek to reduce the volume of such transactions. Actually, however, the situation would seem to be more nearly the opposite. Throughout human history, marked price increases and shortages (for currencies as well as other things) have been blamed on "speculators."

Contrary to common opinion, however, speculation in currencies in regimes in which all participants have equal access to pertinent information can serve the useful purpose of *moderating* fluctuations in demand and supply — and, hence, in currency exchange rates. A currency speculator seeks to anticipate factors that will alter either supply or demand and therefore the future "price" of a currency. To be successful, a speculator must buy when prices are lower than when he sells. Thus, his actions support prices at the time of purchase and restrain them at the time of sale. Supply, demand, and currency price fluctuations are *moderated* by these events, and attempts to constrain them could result in even greater currency price (exchange

² *Plenary Conference of the Trilateral Commission, Tokyo 1985, "Triologue: 37"* (New York, 1985), p. 12.

rate) volatility. Of course, unsuccessful speculation may exacerbate volatility. But unsuccessful private speculators soon run out of funds and influence. Public-sector speculation – called intervention – has no such limit to mistaken policy.

SECRET PLANNING

Schemes to prevent international capital movements through coercive prohibitions do the greatest violence to the chances for successful trade in international currencies. If implemented, Bergsten's proposal would indeed affect the yen/dollar exchange rate dramatically, but probably *not* in ways that he hypothesizes. One need only consider, say, Mexico's repeated inability to stem the outflow of capital and the peso's decline in spite of a nationalized banking system and far-reaching capital restrictions. Such plans ignore the fact that humans are notably ingenious at devising means to circumvent restraints on their freedom. Through one means or another, capital continues – even in the face of harsh oppression – to move despite "official" bans.

Bergsten's seemingly casual observation that such a prohibition "would not even have to be announced" reveals a perhaps more ominous trend in international economic "management." Inasmuch as any "secret" prohibition would soon be found out anyway, this kind of thinking may appear to be harmless. However, insofar as this type of statement also suggests an attitude among international planners that would prevent most private participants from receiving information crucial to their economic decisions and at the same time would seek to insulate the planners themselves from public criticism, its implications are more far-reaching. It implies a tacit admission that if market participants possessed all the pertinent information with respect to the surreptitious activities of the "managers," they would make different, wiser, decisions. Insofar as it involves attempts on the part of the planners to "fool" people into behaving in

ways contrary to their perceived interests, secrecy employed in the application of economic, or any type of, policy invites massive confusion in the markets. To see it applied on an international scale could foster unprecedented disruptions of market activity.

At bottom, virtually all plans for central management of exchange rates fail to acknowledge that human beings behave in the ways that they do. As with central plans in general, they must finally depend on trickery or coercion to promote their stated goals – which invariably are but fantasies.

A BETTER ALTERNATIVE

This is not to suggest that the current floating exchange-rate system serves well the needs of international trade – it does not – or that there are no better alternatives. On the contrary, it has long been our view that the most useful way of promoting sound monetary conditions that facilitate international transactions consists in adhering to a monetary yardstick that reflects market actualities but also is insulated from the most severe forms of human capriciousness. Past experience indicates that currencies convertible into gold would most nearly meet these requirements.

Unfortunately, only a relatively small number of Americans today have any understanding of the stability inherent in gold-based currencies. When currencies are defined by and convertible into gold, exchange rates do not fluctuate wildly, because the currency units involved are simply IOUs for specific weights of gold. Accordingly, each trading partner, or nation, is strictly accountable for meeting the terms of the trading bargain. Gold convertibility thus tends to eliminate the possibility of "manipulating" the system to advantage one country or another. In so doing, it also eliminates the chance to promote various schemes for "development" or "management" contrary to market experience – and that may be one reason why international planners today are loath to mention it.

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| | <i>Abbreviations</i> | <i>Prices</i> |
|---|----------------------|---------------|
| <i>Personal Finance</i> | | |
| ANNUITIES FROM THE BUYER'S POINT OF VIEW | AN | 5.00 |
| HOMEOWNER OR TENANT? How To Make A Wise Choice | HT | 5.00 |
| HOW TO AVOID FINANCIAL TANGLES | | |
| Section A: Elementary Property Problems and Important Financial Relationships (Including Wills, Trusts, and Insurance) | HF-A | 5.00 |
| Section B: Taxes, Gifts, and Help for the Widow | HF-B | 5.00 |
| Section C: Trusts May Be More Useful Than Many Realize | HF-C | 5.00 |
| HOW TO COVER THE GAPS IN MEDICARE Health Insurance Options for the Retired | CM | 5.00 |
| INVESTMENT COMPANIES AND FUNDS: A Mutual Fund Primer for Investors | IF | 8.00* |
| LIFE INSURANCE FROM THE BUYER'S POINT OF VIEW | IB | 5.00 |
| SENSIBLE BUDGETING WITH THE RUBBER BUDGET ACCOUNT BOOK | AC | 5.00 |
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| CAUSE AND CONTROL OF THE BUSINESS CYCLE | CC | 5.00 |
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