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NOW's and Super NOW's: Implications For Defining and Measuring Money

By Bryon Higgins and Jon Faust

The concept of money has long played a central role in economic theory and analysis. Moreover, empirical measures of money have increasingly been used in the implementation of monetary policy. Nevertheless, there has never been complete agreement on how best to define and measure money.

The transactions approach to defining money and a correspondingly narrow monetary aggregate such as M1 have been predominant in both economic research and policy implementation. This approach was believed to be most useful because the essential distinguishing feature of money was considered to be its use as a medium of exchange. Although admitting in practice the existence of "near money" assets like time deposits, the logic of the transactions approach requires a strict dichotomy between money and other assets. To the extent that such a dichotomy was not inherent in the properties of the assets themselves, laws and regulations have been used to create differences between transactions balances and other assets.

Rapid financial innovation together with regulatory changes in recent years has reduced

the distinctiveness of money as traditionally defined and measured. The nationwide introduction of NOW accounts in 1981 and Super NOW accounts in 1983 has been particularly important in breaking down the distinctions between transactions deposits and other assets.

This article provides a theoretical perspective for interpreting the implications of NOW accounts and Super NOW accounts for the traditional view of money and the conduct of monetary policy. First, the currently predominant "transactions" approach to defining and measuring money for monetary policy purposes is examined. Next, the experience with NOW accounts and the prospective impact of Super NOW accounts are discussed. Finally, a liquidity approach to defining and measuring money is presented as an alternative to the transactions approach.

Transactions balances and monetary policy

The Federal Reserve currently implements monetary policy by using various monetary measures as intermediate policy targets. These targets are used in short-run policy implementation because of a lack of timely information about the ultimate goals of policy. It is believed that achieving the intermediate target will result in achieving policy goals, such as economic growth, price stability, and high employment.

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Thus, the usefulness of alternative approaches to defining and measuring money for policy purposes can be evaluated by how well they meet three general criteria for intermediate targets.¹

First, a reliable empirical measure of money must exist that corresponds closely to the method of definition chosen. Second, this empirical measure of money must bear a predictable and close relationship to the ultimate goals of policy. Such a reliable relationship is necessary to ensure that achieving target values will result in the desired behavior of goal variables. Third, the Federal Reserve must be able to achieve the targeted growth rate of money by adjusting the instruments of monetary policy. Although the controllability criterion raises many important issues, this article focuses on how NOW and Super NOW accounts have affected the ability to define and measure money for use as an intermediate target to achieve ultimate policy objectives.

Transactions approach to defining money

The transactions approach to defining and measuring money has been predominant both for empirical testing of economic theories and for the conduct of monetary policy. The basis for this predominance has been the widespread belief that the amount held in transactions balances is reliably related to total spending and thus to ultimate policy goals.

According to the transactions approach, the essential distinguishing feature of money is that it is generally accepted as a means of payment for other commodities. The utility of money,

therefore, derives from the reduction in the costs of exchanging commodities made possible by having one commodity that represents generalized purchasing power. Because money is viewed as a "contrivance for sparing time and labor" in making transactions, the medium of exchange criterion corresponds to the transactions approach to defining money.²

The transactions approach to defining money assumes that assets performing as a medium of exchange are qualitatively different from other assets. Whereas all assets serve as a store of value, only a limited number are generally accepted as a means of payment. Because of their unique function as a medium of exchange, these assets are deemed to be different from other assets not just in degree but in kind.

The unique role of money as a medium of exchange also serves as the basis for the belief that transactions balances are reliably related to total spending and thus to the ultimate goals of monetary policy. This can be shown most easily within the framework of the quantity theory of money. The quantity theory is based on the equation of exchange, which can be written as the identity $MV = PT$, where M is the quantity of money defined as the sum of all assets used as media of exchange, V is the velocity of money, P is the aggregate price level, and T is the volume of transactions financed by monetary exchange. Under certain simplifying assumptions regarding the predictability of velocity and of the ratio of spending on goods and services to total transactions, the equation of exchange can be used to derive a relationship between the growth rate of money and the rate of inflation. The implications for monetary policy would then be clear—by controlling the growth of money, the monetary authorities

¹ For a more detailed discussion of this issue, see Anna J. Schwartz, "Short Term Targets of Three Foreign Central Banks," in *Targets and Indicators of Monetary Policy*, ed. by Karl Brunner (San Francisco: Chandler Publishing Co., 1969), p. 39.

² John Stuart Mill, *Principles of Political Economy* (London: Longmans, Green, and Co., 1909), p. 488.

could prevent inflation. Thus, a measure of money composed of all assets used for transactions would be a very attractive intermediate target because of its simple and predictable relationship with goal variables.

*M1 as an empirical measure
of transactions balances*

The M1 measure of money, which until recently included only currency and demand deposits, has been the preeminent monetary policy target in recent years. Although the Federal Reserve establishes targets for broader monetary aggregates and for bank credit, it has stressed the importance of M1 in the conduct of monetary policy except during brief periods when it was felt that various technical distortions caused M1 behavior to be unrepresentative of underlying monetary growth trends. The emphasis on the M1 monetary measure as a policy guide has been based on the presumption that the transactions approach to defining money is most useful for policy purposes. It was felt that M1 best fulfilled the first two criteria for a desirable intermediate target.

Before the recent wave of financial innovations, M1 met the basic criteria for a useful intermediate policy target. Despite minor qualifications, demand deposits and currency were the only generally acceptable means of payment. Moreover, both were distinguished from other assets by the fact that they alone did not earn interest. In part, the distinctiveness of M1 assets has resulted from regulations. Prohibition of interest on demand deposits is one regulation that establishes a sharp distinction between money and other assets from the point of view of depositors.

Although initially intended as a method of ensuring the safety and soundness of the banking system, the prohibition of interest on demand deposits was subsequently justified as be-

ing necessary to preserve the distinction between money and other assets.³ Until recently, demand deposits and currency were the primary assets used as a medium of exchange in the United States. Since it is impractical to pay interest on currency, prohibition of interest on demand deposits increases the similarity between demand deposits and currency and distinguishes both from assets that yield interest.⁴ By creating disincentives to holding demand deposits except as necessary to finance current transactions, the prohibition of interest on demand deposits helped to make demand deposits and currency relatively close substitutes for each other but relatively poor substitutes for other assets, thereby strengthening the distinctiveness of M1 assets as required under the transactions approach to defining and measuring money.

High reserve requirements on demand deposits also have contributed to the correspondence of the M1 measure of money to the theoretical requirements of the transactions approach by distinguishing demand deposits from time deposits. Some proponents of the transactions approach went so far as to recommend 100 percent reserve requirements on demand deposits and no reserve requirements on other deposits.⁵ This would have the effect of

³ The prohibition of interest on demand deposits was part of the Banking Act of 1933. For a further discussion, see Bryon Higgins, "Interest Payment on Demand Deposits: Historical Evolution and the Current Controversy," *Economic Review*, Federal Reserve Bank of Kansas City, July/August 1977, p. 3. For an example of the argument that prohibition should be maintained to distinguish money from other assets, see U.S. Committee on Financial Institutions (Heller Committee), *Report to the President of the United States* (Washington, D.C.: U.S. Government Printing Office, June 1976), pp. 20-22.

⁴ Implicit interest paid on demand deposits attenuates this distinction somewhat. See Higgins, "Interest Payment on Demand Deposits...."

⁵ Henry Simons, *Economic Policy for a Free Society* (Chicago: University of Chicago Press, 1948), p. 62.

making demand deposits a perfect substitute for currency from the point of view of the commercial banks supplying money to the public.⁶ Although the 100 percent reserve requirement proposal has not been adopted, reserve requirements have been substantially higher on demand deposits than on time and savings deposits. This, too, has the effect of increasing the similarity between demand deposits and currency, while reducing the similarity between demand deposits and other assets, thereby enhancing M1 as an empirical counterpart to the transactions approach for defining money.⁷

⁶ Moreover, 100 percent reserve requirements would effectively preclude paying interest on demand deposits if reserves do not yield interest, thus achieving the same effect on the substitutability in demand between demand deposits and currency as the legal prohibition of interest on demand deposits. One hundred percent reserve requirements also create a separation between the credit system and payments system, a separation necessary to the validity of the transactions approach. Under a fractional reserve system, a system with less than 100 percent reserve requirements, there is necessarily a link between the multiple expansion of deposits and the multiple expansion of credit. Thus, a sharp distinction between the credit system and the payments system can only be maintained with 100 percent reserve requirements on transactions balances. However, it must be noted that 100 percent reserve requirements on transactions deposits is a necessary condition for separation of the payments and credit systems, but it is not sufficient by itself to ensure that separation. Additional requirements include absence of overdraft privileges on checking accounts, inability to use credit cards for payments, and relatively high transactions cost for transferring funds between checking accounts and other assets.

⁷ Higher reserve requirements on demand deposits than other assets could be justified on other grounds. Initially, reserves were considered to be a liquid asset, allowing banks to withstand deposit losses. However, required reserves are now viewed as the least liquid of assets because they are legally required. Higher reserve requirements could be viewed as a means of controlling money. (See J. A. Cacy, "Reserve Requirements and Monetary Control," *Economic Review*, Federal Reserve Bank of Kansas City, May 1976, p. 3 (reprinted in *Issues in Monetary Policy*.) However, until October 1979, the Federal Reserve did not use a reserves approach to monetary control. Under an interest rate approach to implementing monetary policy, the level of reserve requirements is unimportant. Thus, reserve

Economic research seemed to confirm the validity of the transactions approach and the usefulness of M1 as an intermediate policy target. Empirical research conducted in the 1960s and early 1970s on the demand for money and other key relationships tended to confirm that M1 growth was reliably related to inflation and other policy objectives.⁸ Because it had an empirical counterpart that was closely related to policy goals, the transactions approach to defining money gained wide acceptance both within the Federal Reserve and among economic researchers. Correspondingly, M1 came increasingly to serve as the primary intermediate target in the conduct of monetary policy.

Financial innovation and the transactions approach

A number of financial innovations in the 1970s blurred the distinction between M1 and other assets. Money market mutual funds with limited checkwriting privileges emerged in the mid-1970s and began to grow very rapidly in the latter part of the decade. Repurchase agreements and overnight Eurodollar deposits began to be used extensively by corporations to earn interest on very short-term funds. Although obviously important, these developments might be dismissed as merely expanding the range of near-money assets without fundamentally affecting the uniqueness of demand deposits and currency as the only generally acceptable means of payment.

However, the introduction of NOW accounts in New England in the early 1970s could not be rationalized so easily as being nonessential for

requirements could best be viewed as a tax on the holding of certain deposits. A higher tax on demand deposits does help distinguish demand deposits from other assets.

⁸ Stephen M. Goldfeld, "The Demand for Money Revisited," *Brookings Papers on Economic Activity*, 1973:3, p. 577.

the generally accepted method of defining and measuring money. After all, NOW accounts were just like demand deposits in most important respects except that NOW accounts were not available to businesses and paid interest, although at a rate constrained by Regulation Q ceilings. Nevertheless, so long as availability of NOW accounts was confined to the New England region, the traditional M1 measure could reasonably be defended on a priori grounds as an adequate measure of the nation's stock of transactions balances. However, empirical research suggested to some analysts that the formerly close relationship between the traditional M1 measure and policy goals began to break down in the mid-1970s. This research indicated an unpredictable downward shift in the demand for money soon after the introduction of NOW accounts in New England and other financial innovations.⁹ As a result, the usefulness of the transactions approach to defining money and M1 as an intermediate policy target began to be reexamined in light of changes in the relationship between traditional transactions balances and new financial assets. Provisions of the Depository Institutions Deregulation and Monetary Control Act of 1980 (DIDMCA) gave additional impetus to this reexamination because of their far-reaching implications for the transactions approach to defining money.

Effect of NOW accounts on M1

The DIDMCA authorized introduction of NOW accounts by all depository institutions beginning in 1981 and stipulated that interest ceilings on all time and savings deposits, including NOW accounts, be phased out by 1986. These changes have already posed problems for

⁹ Stephen M. Goldfeld, "The Case of the Missing Money," *Brookings Papers on Economic Activity*, 1976:3, p. 683.

the use of M1 in the implementation of monetary policy. For instance, the similarity between NOW's and demand deposited prompted redefinition of the narrow aggregate, M1. Further, the uncertainty regarding the transitional phase during which consumers adjusted to NOW's required several special measures to understand the behavior of NOW's. With the transitional phase concluded at the end of 1981, new problems arose, as NOW accounts began to exhibit unexpectedly strong growth in the face of economic weakness.

Transition to Nationwide NOW accounts

The adjustments that took place following the introduction of NOW accounts required several special actions by the Federal Reserve Board. One was a redefinition of the monetary aggregates to include NOW accounts in the transactions measure, M1.¹⁰ Before the redefinition, NOW accounts were considered to be passbook savings accounts for the purposes of the aggregates and were included only in the broader aggregates.

This change in the way assets were aggregated did not represent a change in the method used to define money. Monetary policymakers still intended to focus on money as measured by assets that serve as media of exchange. The redefinition merely represented an attempt to redraw the distinction between transactions and nontransactions deposits in light of the new type of account.

Although the transactions view of money was maintained in the redefinition of M1, it was clear that the emergence of NOW accounts

¹⁰ At the time that M1 was redefined, the broader aggregates were also revised. This revision process included creation of a new aggregate, L, which was intended to be a measure of total liquid assets in the economy. For an explanation of these revisions, see Thomas Simpson, "The Redefined Monetary Aggregates," *Federal Reserve Bulletin*, Vol. 66, No. 2, February 1980, p. 97.

would blur some of the distinction between transactions and nontransactions balances. This is because the payment of explicit interest on NOW accounts lowers both the average and marginal cost to some people of holding funds in a checkable deposit, thereby prompting a shift of funds from nontransactions accounts into NOW accounts.¹¹ Since these new funds would not have been held in a transactions account in the absence of interest payment, they were considered by the Federal Reserve not to be "pure" transactions balances.¹²

Because the timing and magnitude of the shift of funds into NOW's during 1981 were uncertain, the Federal Reserve took two additional steps to aid in understanding the transition period. One was the reporting of two narrow aggregates that year: M1-A, which included currency and demand deposits but excluded other checkable deposits, and M1-B, which included currency and all checkable deposits. Intended only as an aid in interpreting the events of 1981, M1-A was discontinued in

January 1982, and M1-B became known simply as M1.

The most significant special measure taken during this period was the attempt to adjust M1-B to remove any balances that were not purely transactions balances. The rationale behind the adjustment process can be understood by dividing the shift of funds into NOW accounts into two components: (1) the transfer of funds from demand deposits, which merely changed the composition of checkable deposit holdings; and (2) the transfer of funds from other sources, such as passbook savings accounts. Unlike the first component, the second component is a shift from nontransactions assets to a checkable deposit, which increases total checkable balances and M1. Because these funds had been held in nontransactions accounts, they were judged to be nontransactions balances, which would artificially inflate M1-B as a measure of transactions balances.¹³

The task of determining the purpose served by funds in NOW accounts was completed by

¹¹ The basis for this difference between the yields of NOW accounts and demand deposits is that NOW's pay explicit interest, while demand deposits typically pay a higher rate of implicit interest than NOW accounts in the form of services provided below cost. It is difficult to measure this implicit interest precisely, but a crude estimate can be obtained from Federal Reserve functional cost analysis data. The data used here are 1981 data for average earning banks with deposits between \$50 and \$200 million. These data indicate that for 1981 the implicit yield on personal demand deposits was approximately 6.9 percent, the same as the before-tax rate on NOW accounts. The data also indicate that the average balance in NOW accounts is \$4,328, more than four times the average balance in demand deposits. The typical higher fee per check written on a NOW account resulted in the average number of debits per month being 14.7, approximately two lower than that of demand deposits. Thus, while the average yield across customers is the same for NOW's and demand deposits, individuals choose the account that offers them the highest return based on such considerations as desired minimum balance, desired number of debits, and tax bracket (since only explicit interest is taxed). It is important to note that the average yield on NOW's and demand deposits may be the

same, but the marginal yield could be quite different. While a dollar added to a NOW account earns at least the explicit rate of interest, a dollar added to a demand deposit may yield little or no implicit interest. See Stephen H. Axilrod, "The Impact of Payment of Interest on Demand Deposits," Board of Governors of the Federal Reserve System, Division of Research and Statistics, January 31, 1977, p. 75 (processed).

¹² Actually, the transactions model of money demand predicts that transactions balances would increase with a decrease in the cost of holding these funds. This increase in checkable funds would be an increase in transactions balances in the same sense that increased demand deposit holdings due to a fall in market rates are transactions balances. However, the NOW-induced increase in checkable deposits was caused by a change in regulation, not market conditions. Thus, it is possible to judge the new funds as nontransactions funds in the sense that they were not in the empirical measure of transactions balances before the regulatory change occurred.

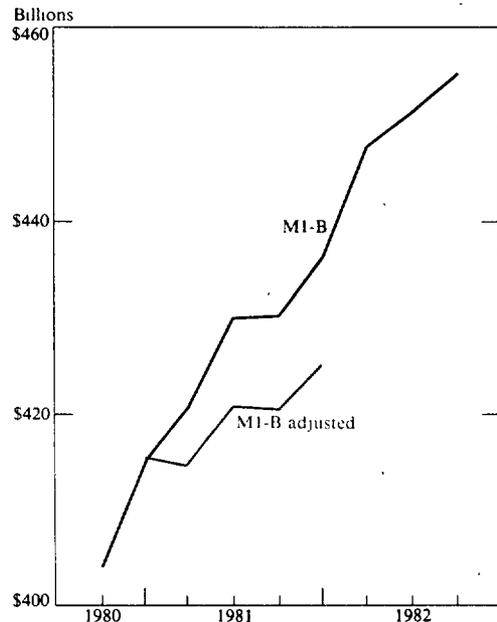
¹³ Thomas Simpson, "Recent Revisions in the Money Stock," *Federal Reserve Bulletin*, Vol. 67, No. 7, July 1981, p. 541.

removing from M1-B the proportion of net inflows to NOW's that was believed to have come from sources other than demand deposits. In estimating this proportion, the Federal Reserve considered several types of information. Surveys of households and financial institutions were used to divide inflows into NOW accounts between demand deposits and other sources. Cross-sectional regression analysis of deposit data was also used to ascertain the source of funds being transferred into NOW accounts.¹⁴

The data for 1981 indicate a rapid adjustment to NOW accounts. In January \$16.3 billion was added to NOW accounts, and by December they had increased by \$50.1 billion. By September 1981, NOW accounts accounted for about 46 percent of all household checkable deposits, a proportion that had grown to about 51 percent by June 1982.¹⁵

Of the funds deposited in NOW accounts in 1981, the Federal Reserve Board estimated that \$12.1 billion was nontransactions funds. (See Chart 1.) More than 75 percent of the nontransactions funds were deposited in the first four months of the year. After that, the shift adjustment increased only slightly, and the unadjusted and adjusted measures moved together. This was taken as evidence that consumers' adjustment to NOW's took only a few months and was probably complete by the end of the year.¹⁶ If the transfer of nontransactions funds were a once-and-for-all phenomenon, then the growth rates of adjusted and unadjusted M1-B

Chart 1
M1-B COMPARED WITH M1-B ADJUSTED



would be similar after 1981. Based on this reasoning, calculation of M1-B adjusted was discontinued in January 1982.

By using adjusted M1-B in 1981, the Federal Reserve expected to obtain a more meaningful measure of transactions balances for use in monetary policy. The shift adjustment significantly altered the view of the growth of money in 1981, lowering the growth rate of M1-B by 2.7 percentage points, from an unadjusted 5.0 percent to a 2.3 percent shift-adjusted rate. Thus, the use of M1-B adjusted in policy decisions placed a great deal of importance on the accuracy of the adjustment.

There have been both theoretically based and empirically based criticisms of the shift adjustment. Critics have contended that the survey evidence regarding sources of funds may have been flawed by indicating only the immediate source of funds placed in NOW accounts, in-

¹⁴ Simpson, p. 542.

¹⁵ Based on the level of personal demand deposits as estimated in the Demand Deposit Ownership Survey, *Federal Reserve Bulletin*, Vol. 68, No. 9, September 1982, p. A24, and the level of NOW accounts as reported in the Federal Reserve H.6, "Money Stock Measures," release.

¹⁶ See, for example, Paul A. Volcker, *Hearings Before the Committee on Banking, Finance, and Urban Affairs*, H.R. 97-57, 97th Cong., 2d Sess., February 10, 1982, pp. 21, 41.

stead of the ultimate source, after all M1-B adjustments were completed. For example, a depositor might open a NOW account by drawing down a savings account, while waiting for the checks on a demand deposit to clear. Later, the savings deposit would be replenished with funds freed by closing the demand deposit. Thus, the immediate source of funds in the NOW would be a savings deposit, but the ultimate source, after all adjustments, would be a demand deposit. If surveys only discovered the immediate source of deposits in NOW accounts, the funds in the above example would have been mislabeled as nontransactions balances.¹⁷

The behavior of M1-B adjusted during 1981 led to further questions about the accuracy of the shift adjustment. These questions arose because M1-B adjusted growth in the first three quarters of 1981 was much weaker than expected, resulting in a growth rate of 2.3 percent for the year as a whole. This was well below the growth rate range of 3 1/2 to 6 percent selected by the Federal Open Market Committee (FOMC).

Several efforts have been made to explain this phenomenon. One explanation is that too large a portion of M1-B was removed by the shift adjustment. Several statistics used to summarize the behavior of money are cited in support of this view. For example, because of the inflows of nontransactions funds, the income velocity of unadjusted M1-B should have shown an unusual drop in 1981. The velocity of shift-adjusted M1-B should have been unaffected. However, the velocity of the adjusted measure grew at an unusually high 7.4 percent

rate in 1981, compared with 4.7 percent for the unadjusted aggregate and 2.3 percent that was predicted by using a conventional velocity equation.¹⁸ Such evidence could indicate that some of the funds removed from M1-B by the shift adjustment were actually used for transactions and, therefore, should not have been removed.¹⁹

Another explanation is that the redefinition of M1, which still relied on a clear distinction existing between transactions and nontransactions balances, could not capture all the changes occurring in types of assets and methods of payment. For instance, the rapid growth of money market mutual funds (MMMF's), against which checks can be written, probably led to a downward shift in the demand for M1 assets by allowing depositors to earn a higher rate of return on some of their

¹⁸ The predicted values of M1-B velocity were obtained from dynamic simulation of a velocity equation estimated from the second quarter of 1959 through the second quarter of 1974. The estimated velocity equation, which was derived from a standard money demand equation, was of the form:

$$\log(V_t) = A_0 + A_1 \cdot \text{Log}(y_t) + A_2 \cdot \text{Log}(r_t) + A_3 \cdot [\text{Log}(P_t/P_{t-1}) - \text{Log}(y_{t-1}) + \text{Log}(V_{t-1})]$$

where

V is nominal GNP/M1-B,
y is GNP in 1972 dollars,
P is the implicit price deflator for GNP,
r is a weighted average of seven interest rates, and
Log() indicates the natural logarithm of the variable in parentheses.

This equation and the velocity of the monetary aggregates are discussed more fully in Bryon Higgins and Jon Faust, "Velocity Behavior of the New Monetary Aggregates," *Economic Review*, Federal Reserve Bank of Kansas City, September/October 1981, p. 3. (Reprinted in *Issues in Monetary Policy: II*, Federal Reserve Bank of Kansas City, March 1982.)

¹⁹ The behavior of other statistics that summarize money are discussed, with similar results, in Tatom, "Recent Financial Innovations..." pp. 27-32.

¹⁷ For a more complete explanation of this and other arguments regarding shift adjustment of M1-B, see John A. Tatom, "Recent Financial Innovations: Have They Distorted the Meaning of M1?" Federal Reserve Bank of St. Louis *Review*, Vol. 64, No. 4, April 19, 1982, p. 23.

transactions balances. Also, the spread of "sweep" accounts in 1981 may have countered some of the increase in checkable deposits expected due to NOW accounts. These accounts sweep all funds above a prespecified minimum into a higher yielding asset and return the funds to the checkable account only when it falls below the minimum. Thus, growth of MMMF's or sweeps may have accounted for some of the weakness of M1-B in 1981.

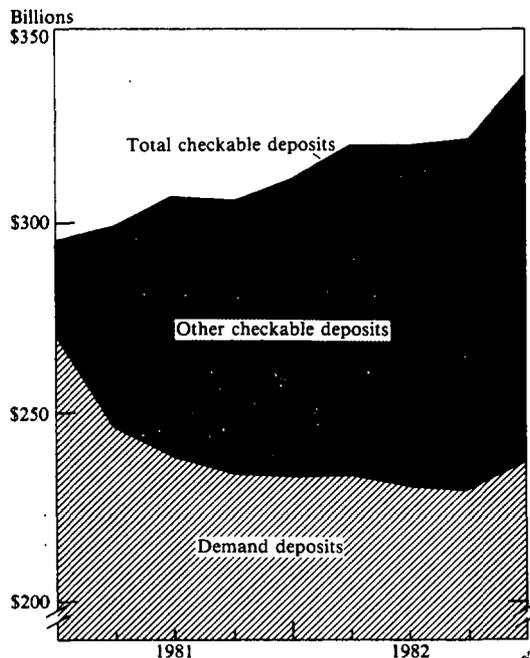
If this explanation has some validity, the view that transactions deposits can be separated from nontransactions deposits may be suspect instead of the specifics of the shift adjustment. However, the limited information available about the experience in 1981 is not adequate for drawing any firm conclusions about the source of the controversial M1-B behavior.

Divergence of NOW accounts and demand deposits

The NOW account component of M1 began causing further confusion in November 1981. The quarterly growth of other checkable deposits jumped from 21.2 percent in the third quarter of 1981 to 27.6 percent in the fourth quarter and 49.5 percent in the first quarter of 1982. The strength in NOW's, which occurred during a period of economic weakness, is even more confusing, given the belief that adjustment to the introduction of NOW's was completed by the end of 1981. If this were so, demand deposits and NOW accounts might be expected to grow thereafter at roughly similar rates.²⁰ However, demand deposits registered slight declines in the fourth quarter of 1981 and

²⁰ Differences in ownership could cause some divergence in the behavior of demand deposits and NOW accounts, especially over short periods. For example, NOW accounts are held primarily by individuals while demand deposits are held primarily by businesses. However, it is unlikely that this difference accounts for all the divergence in the growth rate of NOW accounts and demand deposits for 1982 as a whole.

Chart 2
DEMAND DEPOSITS AND
OTHER CHECKABLE DEPOSITS



the first quarter of 1982. (See Chart 2.) This divergence continued in 1982 as other checkables grew over 30 percent while demand deposits increased about 1 percent.

The growth of other checkable deposits fueled greater-than-expected growth in M1 in 1982, and for this reason it has been a source of speculation. One relatively simple explanation is that the divergent growth of NOW's and demand deposits merely represents a continuation of the transfer of funds out of demand deposits and other assets into NOW accounts in response to the initial offering of NOW's. This explanation would imply somewhat longer lags in recognition and adjustment than some analysts have asserted, but is not inconsistent with the lags in adjustment of money balances implied by some money demand equations. If this view is correct, then the Federal Reserve

might be expected to merely accommodate the outward shift in money demand, since it is not related to a change in economic activity.

Another explanation is that the rapid growth of NOW accounts and M1 could be accounted for by a conventional transactions model of money demand. A conventional money demand equation based on the transactions model and past relationships between money, income, and interest rates can predict much of the behavior of M1 in 1982.²¹ However, this argument does little to explain the wide divergence in the growth of NOW accounts and demand deposits. Despite this fact, if the strong money growth does imply increasing transactions and spending, the Federal Reserve might be expected to restrain the money growth to avoid contributing to inflation.

A third explanation of the behavior of NOW accounts has received considerable credence both inside and outside the Federal Reserve. It is that the weak and uncertain state of the economy has prompted precautionary savings in NOW accounts. This explanation implies that NOW accounts are fundamentally different from demand deposits and currency in that their explicit yield removes the incentive to hold only the minimum amount necessary to meet transactions needs. Thus, consumers with NOW accounts may store precautionary balances in a NOW that would formerly have been placed in a higher yielding liquid asset. Further evidence of an increased desire for liquidity beginning in November 1981 can be seen in the growth of passbook savings accounts. These accounts declined significantly in 1979, 1980, and the first 10 months of 1981. However, they began to increase in November 1981, and in the 12 months ended November

²¹ For instance, the velocity equation cited in footnote 18 tracks the decline in the velocity of M1 in 1982 as a whole fairly well.

1982 they grew by 6.1 percent. This may indicate that there has been a general shift toward liquidity on the part of the public.

Chairman Volcker explained the monetary policy implications of this view in July 1982:

In light of the evidence of the desire to hold more NOW accounts and other liquid balances for precautionary rather than transactions purposes during the months of recession, strong efforts to reduce further the growth rate of the monetary aggregates appeared inappropriate. Such an effort would have required more pressure on bank reserve positions—and presumably more pressures on the money markets and interest rates in the short run.²²

If the precautionary savings argument accounts for some of the recent rapid growth in NOW accounts, unpredictable fluctuations in the growth rate of NOW's and M1 may be expected to continue. The emergence of NOW accounts may have blurred the distinction between transactions deposits and nontransactions assets enough to severely complicate the use of the transactions model of money demand. In contrast, it may be that the puzzling behavior of money can be accounted for by particular characteristics of the current economic situation and the adjustment to the new asset. In either case, changes in the regulation of NOW accounts are likely to bring the meaning of M1 under further scrutiny in the near future.

²² Paul A. Volcker, "Monetary Policy Objectives for 1982," *Midyear Review of the Federal Reserve Board*, July 20, 1982, p. 8.

Monetary policy problems associated with Super NOW accounts

The introduction of Super NOW accounts on January 5, 1983 poses new problems for monetary policy. The Super NOW's have no interest rate ceilings yet offer unlimited checking account privileges to individuals willing to maintain \$2,500 minimum balance in a checking account. Moreover, the authority to offer Super NOW's to businesses may be granted soon. As a result, interpretation of M1 growth will be difficult during the transition period in which funds are transferred into the new account. More importantly, problems for defining and measuring money under the transactions approach may persist and intensify as a result of the introduction of Super NOW's.

Transitional problems

Portfolio adjustments caused by the introduction of Super NOW accounts will complicate monetary policy implementation at least through the remainder of the year. Competition among depository institutions to retain existing deposits and to attract new funds is expected to keep the rate on Super NOW accounts near market rates adjusted for the 12 percent reserve requirement on Super NOW's. The near-market yield together with unlimited checking and federal insurance on Super NOW's may cause individuals—and prospectively, businesses—to shift substantial amounts of funds out of NOW accounts, demand deposits, time and savings deposits, money market funds, and a variety of other assets into Super NOW's. It is uncertainty regarding the magnitude and timing of these portfolio adjustments that will make it difficult to interpret growth in the monetary aggregates, especially M1, during the transition period.

The introduction of Super NOW's in 1983, like the introduction of NOW's in 1981, will cause M1 growth to be unrepresentative of the "true" growth of transactions balances.²³ This

temporary distortion will reduce the usefulness of M1 as an intermediate target for monetary policy. In deciding how best to implement monetary policy in this uncertain environment, the Federal Reserve may decide to rely on a shift-adjusted version of M1, as in 1981. As in 1981, however, uncertainty regarding the accuracy of the shift adjustment procedure itself could result in controversy about the truest measure of growth in transactions deposits. Thus, the Federal Reserve may prefer to deemphasize M1 as a policy target for 1983 and focus instead on the broader monetary aggregates. These aggregates will be less severely affected by the introduction of Super NOW's because most of the funds transferred into the new account will be from assets included in the M2 and M3 measures of money. In addition, a broad credit aggregate may be used in policy implementation, as recently proposed by Chairman Volcker and advocated by some economists.²⁴ Whatever temporary measures are decided upon to deal with the problems for M1 caused by the introduction of Super NOW's could in principle be abandoned after the initial portfolio shifts are completed. However, the availability of Super NOW's may pose problems for monetary policy that persist even after the initial transition period is over.

²³ Transfer of funds into Super NOW's from assets not included in M1 will tend to raise M1 growth artificially. However, transfer of funds into the new money market deposit account introduced in December 1982 from NOW accounts and demand deposits is a countervailing factor tending to depress M1 growth artificially. Whether observed M1 growth will overstate or understate growth in transactions balances in 1983 will depend on which effect predominates. In either case, though, M1 growth will be unrepresentative of the growth in transactions balances.

²⁴ See Benjamin M. Friedman, "Using a Credit Aggregate Target to Implement Monetary Policy in the Financial Environment of the Future," *Monetary Policy Issues in the 1980s*, Proceedings of a symposium sponsored by the Federal Reserve Bank of Kansas City, held August 8-10, 1982 at Jackson Hole, Wyoming (January 1983).

Problems for defining and measuring money

The introduction of Super NOW's raises long-run monetary policy problems. Although reducing incentives for financial innovations that have in the past caused unpredictable shifts in money demand that have themselves complicated monetary policy implementation, the market rate of return paid on a major component of M1 raises questions not only about the appropriateness of M1 as an empirical measure of transactions balances but also about the usefulness of the transactions approach to defining money.²⁵

The near-market yield on Super NOW's may make them attractive repositories for balances held for precautionary or other purposes. As discussed above, the rapid growth of M1 in 1982 may have been due in part to a buildup of precautionary balances in NOW accounts, even though the yield on NOW's was well below market rates and individuals had a substantial interest rate incentive to separate transactions balances from other balances. This interest rate incentive to segregate transactions balances has

²⁵ This points up the inevitable tradeoff from a monetary policy perspective with respect to paying a market-related rate on checkable deposits. For example, a recent legislative proposal to pay interest on required reserves held against Super NOW accounts would remove the last vestige of the distinction between transactions balances and other assets. By so doing, it would eliminate the remaining incentive to introduce new near-money assets, thereby prospectively eliminating uncertainty for monetary policy arising from unpredictable shifts in money demand. However, by allowing the rate on Super NOW's to reflect market rates fully, enactment of this proposal would also eliminate the small incentive to minimize on transactions balances, thereby attenuating the relationship between M1 and total spending. Even if this proposal is not enacted, however, financial institutions may be able to devise methods of avoiding the cost of the 12 percent reserve requirements on Super NOW's. There is already discussion of linking the new money market deposit account with a transactions account through a sweep arrangement. See John Morris, "S&L Thinks It Can Beat Reserves Rule," *American Banker*, December 30, 1982.

been substantially eliminated by the introduction of Super NOW's. Under current circumstances, individuals—and prospectively, businesses also—may decide to consolidate transactions balances with other funds in a relatively high-yielding Super NOW account. If so, the closeness of the relationship between M1 growth and ultimate policy objectives could be attenuated, thereby possibly reducing the effectiveness of M1 as an intermediate target.²⁶ On the other hand, the 12 percent reserve requirement on Super NOW's may provide sufficient incentive for separation of transactions from other balances that the traditional relationship between M1 and policy goals is not eroded.

The prospect that reserve requirements on Super NOW's will not by themselves prevent comingling of transactions with other balances has led some analysts to suggest that the Federal Reserve establish a "regulatory moat" around transactions balances. By imposing reserve requirements on all assets available for spending within a few days and including all of these assets in M1, it is argued, the Federal Reserve could reestablish the distinctiveness of transactions balances and make M1 less susceptible to financial innovation. This type of regulatory moat could compensate to some extent for removing the more traditional moat of ceiling interest rates on transactions deposits.

However, a regulatory moat might not be adequate in restoring M1 as a meaningful measure of transactions balances. Relatively low reserve requirements have little effect on

²⁶ For example, rapid M1 growth might be due to increased demand for speculative balances resulting from belief that long-term rates would soon increase rather than to an increased demand for transactions balances related to increased spending for goods and services. If so, Federal Reserve actions to restrain M1 growth would cause interest rates to rise, thereby ratifying the expectations of investors but perhaps reducing growth in spending below the rate consistent with policy objectives for the economy.

yields and may not, therefore, provide a qualitative distinction between transactions balances and other assets. Moreover, the premise of a regulatory moat—as of earlier versions, such as 100 percent reserve requirements and interest rate ceilings on transactions deposits—is that transactions costs of transferring funds among assets are high enough to deter active cash management.²⁷ One of the main lessons to be learned from the rapid financial innovation in the past few years is that transactions costs of transferring funds have been reduced substantially by the application of computer technology to the financial industry. The private sector has both the means and the incentive to bridge whatever regulatory moat is established. There will always be opportunities to create new assets that are just beyond the scope of the regulations applying to transactions deposits but are close substitutes for these deposits. The low costs of transferring funds will encourage financial institutions to exploit these opportunities. Some might argue, therefore, that a regulatory moat is not likely to enable the Federal Reserve to construct an empirical monetary measure that corresponds to the theoretical concept of money as defined by the transactions approach.

The prospective inability to construct monetary measures that correspond closely to the transactions approach may necessitate a reappraisal of how best to define money. This is in part because paying a market rate on deposits used as a medium of exchange will lead to substantially greater integration of the payments system and the credit system. For instance, there may be lines of credit attached to

NOW accounts. The medium of exchange function will not be as distinctly separable from the store of value function as in the past and, therefore, a less useful criterion for defining money.

Liquidity approach to defining money

Some analysts contend that a liquidity approach rather than a transactions approach may be the most appropriate method for defining money in the future. According to the liquidity approach, the essential feature of money is that it is the most liquid of all assets. The degree of liquidity is defined as the extent to which an asset can be sold or redeemed at an unknown future time at a known dollar price on short notice and with minimum costs.²⁸ The liquidity approach, then, stresses the store of value function rather than the medium of exchange function emphasized in the transactions approach.

Nature of liquidity

By its very nature, the liquidity approach assumes that money is not qualitatively different from other assets. Instead, liquidity is a property of all assets to some degree. The varying degrees of liquidity of different assets can, in principle, be ranked along a continuum. At one end, currency is by definition perfectly liquid in that it can be sold at a perfectly certain dollar value at any time, without incurring costs. At the other end of the spectrum, such assets as real estate are relatively illiquid, in part because selling them may take a long time and involve substantial brokerage costs.²⁹ More importantly, assets such as real estate are illiquid because their prices fluctuate substan-

²⁷ There are several operational problems with imposing this regulatory moat. For example, all assets with a secondary market could be converted to cash within one day. It would be difficult, as well as beyond the authority of the Federal Reserve, to impose reserve requirements on all such assets.

²⁸ See J. R. Hicks, "Liquidity," *Economic Journal*, Vol. 72, No. 288, December 1962, p. 787.

²⁹ Real estate is actually not the best example of an asset to use in contradistinction to currency. Human wealth is probably the least liquid form of asset.

tially, meaning that one cannot be certain of the price at which these assets can be sold in the future. Nevertheless, real estate has some degree of liquidity as do all other forms of wealth. With assets ranked according to their liquidity, it would be clear that, in this respect, assets used as a medium of exchange do not differ from other assets in kind but only in degree.

The liquidity of an asset depends on several factors, including the existence of an active secondary market. However, the factor most often stressed as determining the liquidity of a financial asset is its term to maturity. A long-term financial asset, such as a bond, is less liquid than a short-term asset that is similar in other respects, because its price fluctuates more with changes in interest rates.³⁰ As a result, long-term assets are generally considered less liquid than short-term assets.

The concept of liquidity and the importance of the distinction between long-term assets and short-term assets were central to the monetary theory of John Maynard Keynes.³¹ According to Keynes, the demand for money results from the fundamental desire for liquidity and thus need not be limited to the need for financing current purchases.³² Instead, the transactions motive for holding money must be supplemented by the precautionary and speculative motives to understand the total demand for money.

The precautionary motive results from uncertainty. It arises not from the need to finance perfectly anticipated expenditures in the near future, as does the transactions motive, but

from the prospective need to finance an uncertain amount of expenditures at some unknown time. In addition, Keynes identified a speculative motive for holding money. He saw this motive as related to the difference between long-term and short-term assets. Expectation of an increase in interest rates would lead individuals to prefer short-term assets to long-term assets, because a decline in the prices of bonds and similar assets would accompany a prospective rise in interest rates. Because of its emphasis on the distinction between short-term and long-term assets and on the importance of liquidity, Keynes' monetary theory is called the liquidity preference theory.

Measuring money under the liquidity approach

A narrow monetary aggregate such as M1 is in many respects inadequate to measure money under the liquidity approach. Indeed, none of the current empirical measures of money is a close counterpart to the theoretical concept of liquidity. The broader M2 and M3 aggregates used in policy implementation include money market mutual fund shares, time deposits, repurchase agreements, and other very close substitutes for M1 assets but exclude some other liquid assets such as Treasury bills. Although the Federal Reserve collects data on a broader liquidity measure, L, this aggregate has never been used directly in the conduct of monetary policy, in part because of data limitations.

Even if the data availability problems associated with very broad aggregates could be overcome, however, these aggregates might not prove to be useful as intermediate policy targets due to the inadequacy of conventional methods for constructing financial aggregates. The theoretical concept of liquidity implies gradations in the degree of liquidity per dollar for various assets. The traditional method of constructing aggregates, however, is to include the

³⁰ Thomas D. Simpson, *Money, Banking, and Economic Analysis* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1981), p. 128.

³¹ See Hicks, "Liquidity...", p. 788.

³² John Maynard Keynes, *The General Theory of Employment, Interest, and Money* (New York: Harcourt, Brace, and World, Inc., 1964), p. 194.

entire dollar value held in some assets but exclude the entire amount held in other assets. This "all-or-nothing" method of constructing empirical measures is appropriate, provided the corresponding approach to the definition of money implies qualitative differences between assets, as in the case of the transactions approach. However, traditional methods may be inappropriate for constructing empirical monetary measures that correspond closely to the liquidity theory of money, which implies that differences among assets are a matter of degree rather than kind. Ideally, the method of constructing empirical measures of liquidity would reflect the assumption that there are not discrete breaks along the continuum of assets.

A weighted average method for constructing monetary aggregates would most nearly conform to the liquidity approach to the definition of money. As described by Milton Friedman and Anna J. Schwartz, the weighted average method

consists of regarding assets as a joint product having different degrees of 'moneyness,' and defining the quantity of money as the weighted sum of the aggregate value of all assets, the weights for individuals assets varying from zero unity with a weight of unity assigned to that asset or assets regarded as having the largest quantity of 'moneyness' per dollar of aggregate value. The procedure we have followed [that is, the conventional method] implies that all weights are either zero or unity.³³

³³ Milton Friedman and Anna J. Schwartz, *Monetary Statistics of the United States* (New York: National Bureau of Economic Research, 1970), p. 151.

Such a procedure would be ideal for constructing empirical counterparts to the liquidity approach for defining money if there were a reliable empirical method for estimating weights that corresponded to the degree of liquidity of each asset. Several methods have been proposed, but none seems to be entirely satisfactory.³⁴ Despite their imperfections, however, one of these methods may become increasingly attractive for constructing monetary measures used in policy implementation if the deterioration in the relationship between M1 and ultimate policy goals becomes so severe that the transactions approach to defining money must be abandoned altogether. In this situation, a weighted average aggregate corresponding to the liquidity approach for defining money may become the best available measure for use in policy implementation.³⁵

Summary and conclusions

The transactions approach to defining money and the correspondingly narrow M1 monetary measure it implies have predominated in both economic research and policy implementation

³⁴ An example of these methods is described in William Barnett, Paul Spindt, and Edward Offenbacher, "Empirical Properties of Divisia and Simple Sum Monetary Aggregates," Conference Paper No. 122, National Bureau of Economic Research Inc., August 1981. For a different method, see V. Karuppan Chetty, "On Measuring the Nearness of Near-Moneys," *American Economic Review*, Vol. 59, No. 3, June 1969, pp. 270-81.

³⁵ The controllability of a weighted average aggregate is subject to question. It has been contended, however, that the problem is not insurmountable. See Paul A. Spindt, "A Multiplier Model for Controlling Divisia Monetary Aggregates," Federal Reserve Board of Governors, Division of Research and Statistics, Special Studies Paper No. 171, July 1982. To avoid control problems, a weighted average aggregate might be more useful as an information variable than an intermediate policy target. For a discussion of the use of information variables, see J. H. Kareken, T. Muench, and N. Wallace, "Optimal Open Market Strategy: The Use of Information Variables," *American Economic Review*, Vol. 63, No. 1, March, 1973.

for the past several years. However, the introduction of NOW's and Super NOW's has cast doubt on the usefulness of a transactions approach to defining money. Interest on transactions deposits may lead to consolidation of balances held purely for transactions purposes with balances held for very different purposes. If so, the close relationship between M1 and ultimate policy goals would be weakened, thereby reducing the efficacy of using M1 as an intermediate target of monetary policy.

The liquidity approach to defining money may be preferable to the transactions approach in the emerging financial environment. Unlike the transactions approach, the liquidity ap-

proach assumes that assets used as a media of exchange are not qualitatively distinct from other assets. This assumption seems increasingly realistic, given the introduction of new accounts, such as NOW's and Super NOW's, that can be used as a means of payment but also provide interest income. If the liquidity approach to defining money becomes widely accepted, a reappraisal of conventional methods for constructing empirical monetary measures may also be required. A weighted average of a wide variety of assets rather than the traditional simple sum of a narrow range of assets seems most likely to yield a monetary measure that is useful for monetary policy purposes.

The Decline in Business Profitability: A Disaggregated Analysis

By Dale N. Allman

The rate of return earned by U.S. businesses has been relatively low for the past several years. The depressed profit rate partly reflects recession or near-recession conditions in the economy over much of the last decade. Some economists have argued, however, that the low profit rate of recent years also reflects a longer run downward trend related to conditions other than the business cycle.

Determining the magnitude, duration, and causes of the decline of profitability is important for at least two reasons. First, if the decline is due primarily to cyclical factors, the profit rate could be expected to rebound as the economy recovers from the 1981-82 recession. However, to the extent that declining profit rates are a continuation of longer run trends, a substantial rise in profitability in the near future is much less certain. Second, the desirability and effectiveness of policies to raise the profit rate may depend on the causes and pervasiveness of the decline.

One way to analyze the causes of the declining profit rate is to examine its components.

Examining profit rates in individual sectors and industries may provide insights into the sources of the decline in the aggregate profit rate. Identifying the sources also may provide information regarding policies that are most likely to be effective in boosting the aggregate profit rate and policies that are least likely to be effective.

This article examines profit rates for U.S. businesses in the post-World War II period. A significant downward trend over this period is documented and the aggregate profit rate is decomposed in several ways to examine whether the downward trend was pervasive throughout various sectors and industries or was concentrated in only a few areas of the economy. The first section of the article reviews the findings of previous studies regarding the postwar trend in the profit rate and documents a long-run downward trend using a more comprehensive measure of profits than used in these previous studies. In the second section, two sectoral breakdowns of the aggregate profit rate are analyzed. These sectoral breakdowns are used to show that the aggregate decline cannot be explained by a change in the relative size of various sectors but results instead from declining profits in each individual sector. The final section examines the contributions of eight industry groups to the aggregate decline in profitability. This analysis shows that almost

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every industry in the U.S. economy has contributed to the downward trend in the aggregate profit rate.

Aggregate profit trends

Several recent studies have examined the aggregate profit rate in the United States.¹ All these studies focus on a measure of the profit rate for nonfinancial corporations and conclude that although the aggregate profit rate varies over the business cycle, it has declined significantly since the mid-1960s. There has been no consensus, however, as to whether the profit rate has shown a significant downward trend over the postwar period. Studies by William Nordhaus and Michael Lovell suggested that there was a such a downtrend.² Studies by Martin Feldstein and Lawrence Summers and by Herbert Runyon found no convincing evidence of significantly declining profit rates over the postwar period.³ Instead, they concluded that the fall in the profit rate after the mid-1960s was temporary, noting a slight improvement in profits in the early 1970s.

The divergent results of these studies result in part from differences in the measure of the profit rate used by the various authors. Nord-

haus used the ratio of after-tax profits plus net interest to the value of physical capital. After-tax profits were adjusted for increases in the value of inventories due to inflation and for differences between economic depreciation and depreciation allowed for tax purposes. Net interest payments by businesses were added to after-tax profits in recognition that part of the income earned from capital is used to make interest payments on loans for buying that capital. Including net interest payments on loans as a component of capital income recognizes that conventional measures of profits do not adequately reflect business payments on debt in inflationary periods. However, the studies by Feldstein and Summers and by Runyon used before-tax profits rather than after-tax profits.⁴ Lovell examined 14 alternative estimates of the profit rate including measures of the return on equity and the share of profits in total output as well as the return to physical capital used by other analysts.

Despite their dissimilarities, all of the previous studies have focused exclusively on the profits of nonfinancial corporations. A more comprehensive measure is used in this article that includes profits of all businesses. The prof-

¹ See Martha S. Scanlon, "Postwar Trends in Corporate Rates of Return," *Public Policy and Capital Formation*, Board of Governors of the Federal Reserve System, 1981, pp. 75-87, for a review of the literature.

² William D. Nordhaus, "The Falling Share of Profits," *Brookings Papers On Economic Activity* (1974:1), pp. 169-216; Michael C. Lovell, "The Profit Picture: Trends and Cycles," *Brookings Papers on Economic Activity* (1978:3), pp. 769-88. Nordhaus did not explicitly test for a trend in the profit rate but based his conclusion in part on analysis of the data. Lovell tested for a postwar downtrend in several measures of the profit rate and found statistical significance for most of them.

³ Martin Feldstein and Lawrence Summers, "Is the Rate of Profit Falling?," *Brookings Papers on Economic Activity* (1977:1), pp. 211-27; Herbert Runyon, "Profits: A Declining Share to Capital?," *Business Economics*, Vol. 14, September 1979, pp. 85-94. Feldstein and Summers tested

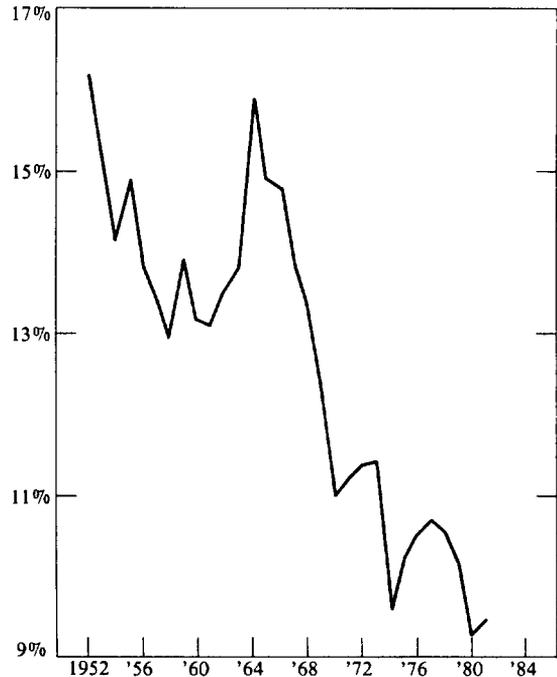
for a downtrend in regressions of the annual profit rate on a time variable, with and without a cyclical variable. In all cases, the t-statistic on the negative coefficient of the time variable was less than 2. Runyon compared the Nordhaus and Feldstein works by focusing on the before-tax profit rate, excluding land from the capital base. Runyon eliminated the 1948-51 period from the analysis after demonstrating that movements in the profit rate in those early years were not representative of the postwar period as a whole. His conclusion then rested on his visual inspection of the data.

⁴ In the Appendix to their article, Feldstein and Summers demonstrate that the before-tax profit rate equals the return society earns on additional investment in physical capital. They note that this national profit rate is tied to the nation's rate of capital accumulation. Nordhaus and Scanlon point out that the after-tax profit rate is important to individual investors.

it rates of financial corporations and unincorporated businesses are combined with the profit rate of nonfinancial corporations to derive a measure of the profit rate for all of the nation's business firms. Except for its more comprehensive coverage, the profit rate used here is similar to those used in previous studies.⁵ Because data are not available for noncorporate business profits on an after-tax basis, before-tax profits are used throughout for consistency.

The comprehensive measure of the profit rate exhibits a significant downward trend in the postwar period, even after allowing for cyclical variations. As shown in Chart 1, the profit rate declined from 16.2 percent in 1952 to 9.5 percent in 1981. The reduction in profits associated with the low level of business activity resulting from the recession that began in 1981 accounts for part of this decline. Empirical evidence developed for this article, using the Feldstein and Summers econometric work as a guide, confirms a significant downtrend and significant cyclical variation in the profit rate.⁶ A cyclically adjusted profit rate would have

Chart 1
BEFORE-TAX PROFITS AS A RETURN TO CAPITAL IN ALL U.S. BUSINESS



⁵ Profits plus net interest payments is used to estimate the profit rate for corporate businesses, while proprietors' income plus net interest payments is used for noncorporate businesses. The total profit rate then is estimated by dividing corporate profits, proprietors' income, the inventory and depreciation adjustments plus total net interest payments by the total value of physical capital.

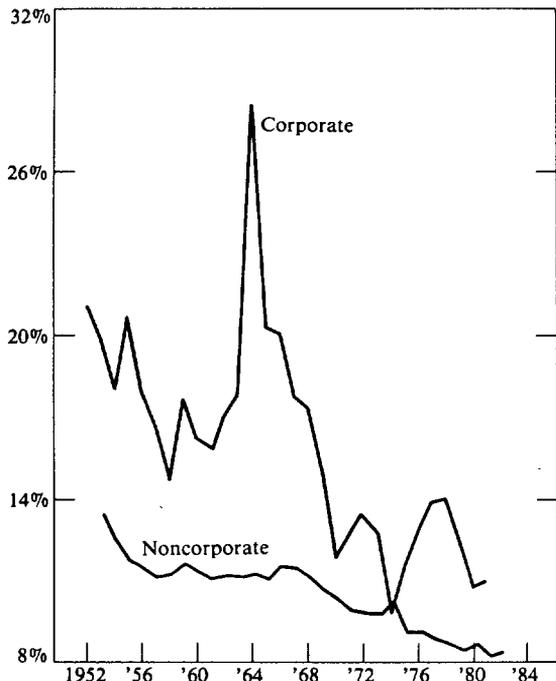
⁶ As mentioned in footnote 3, Feldstein and Summers regress the nonfinancial corporate profit rate on a constant, a time variable, and a cyclical variable. They use the percentage difference between actual and potential output as the cyclical variable. When the comprehensive annual profit rate was regressed on a constant, the time variable, and the output gap for the 1952-1981 period, the constant was positive and statistically significant, the time variable had a negative coefficient with a t-statistic greater than 5, suggesting the profit rate declined over the 1952-81 period as a whole, and the cyclical variable had a positive coefficient with a t-statistic greater than 3. Those estimated regression coefficients were used to calculate the cyclically adjusted comprehensive profit rate by holding the output gap at its 1952-81 average value.

declined only 6.0 percentage points between 1952 and 1981 compared to the unadjusted actual decline of 6.7 percentage points. Having documented a downward trend in the profit rate, it remains to explain the sources of the decline.

Sectoral components of declining profits

This section examines trends in the profit rates in the corporate and noncorporate sectors and in the goods-producing and services-producing sectors of the economy. Such a sectoral decomposition, it is hoped, will be useful in determining whether the decline in the aggregate profit rate has resulted from declining rates in particular sectors or from increases in the importance of sectors with low profit rates.

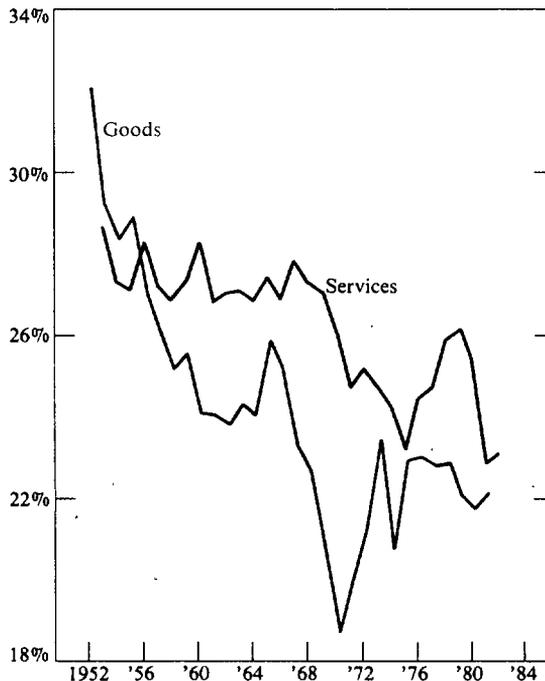
Chart 2
BEFORE-TAX PROFITS AS A RETURN TO
CAPITAL IN CORPORATE AND
NONCORPORATE SECTORS



The aggregate profit rate is a weighted average of the profit rates in individual sectors. The weight assigned each sector's profit rate in determining its contribution to the aggregate profit rate is that sector's share of the nation's total capital. Viewed this way, each sector could contribute to the decline in the aggregate profit rate in either of two ways. First, a decline in a sector's profit rate directly lowers the aggregate profit rate. Second, an increase in a low-profit sector's relative size indirectly lowers the aggregate profit rate by increasing that sector's relative weight in the average aggregate profit rate.

An example may clarify how changes in the relative size of sectors indirectly affect the aggregate profit rate. Assume that there are two

Chart 3
THE BEFORE-TAX PROFIT RATE IN
THE GOODS SECTOR AND THE
SERVICES SECTOR



sectors in the economy, sector A and sector B, and that the profit rate in sector A is 12 percent while the profit rate in sector B is 18 percent. If sectors A and B were the same size initially, then the aggregate profit rate would be 15 percent, or $(1/2)(12\%) + (1/2)(18\%)$. However, if the relative size of sector A increased over time, the aggregate profit rate would decline below 15 percent even if the profit rates in the two sectors were unchanged. For example, assume that rapid growth in sector A resulted in its being twice as large as sector B. In this case, the relative weight given to the profit rate in sector A would increase to two-thirds and the relative weight given to the profit rate in sector B would decline to one-third. As a result, the aggregate profit rate would decline to 14 percent, or

$(2/3)(12\%) + (1/3)(18\%)$. Thus, the aggregate profit rate can decline strictly as a consequence of higher growth rates in low-profit sectors even if there is no decline in the profit rate of any sector. For this reason, it is necessary to take account of the relative size of sectors as well as the profit rates in those sectors in explaining changes in the aggregate profit rate.

One way to analyze the aggregate profit rate is to break down the profit rate into the corporate sector and the noncorporate sector. As shown in Chart 2, the profit rates in both sectors have declined substantially in the postwar period. The profit rate in the corporate sector declined from 21.3 percent in 1952 to 11.2 percent in 1981, and the profit rate in the noncorporate sector declined from 13.6 percent to 8.5 percent. Although the decline was somewhat greater in the corporate than in the noncorporate sector, the profit rates in both sectors showed significant downward trends even after allowing for cyclical factors.⁷ Thus, declining profitability in both sectors contributed significantly to the decline in the aggregate profit rate.

Changes in the relative sizes of the corporate and noncorporate sectors alleviated the decline in the aggregate profit rate somewhat. The relative size of the corporate sector—as measured by its share of the total capital stock—increased more than 10 percent from 1952 to 1981. Since the corporate sector had consistently higher profit rates throughout the

period, its increased size would tend to indirectly raise the aggregate profit rate. However, this indirect effect was more than offset by the direct effects of declines in the profit rates of each sector, thereby yielding a net decline in the aggregate profit rate.

A second useful breakdown for analyzing the aggregate profit rate is to divide the economy into a goods-producing sector and a services-producing sector.⁸ The measure of the profit rate must be adjusted for this breakdown. As data on the value of physical capital are not available separately for the goods sector and the services sector, it is not possible to calculate the return to capital as a measure of the profit rates in these sectors. However, the ratio of profits to output can be used as a measure of the profit rate for each sector and for the aggregate. For this purpose, value added is used as the measure of output, and the same measure of profits used previously is retained. This revised measure of the profit rate is then used to analyze the contributions of the goods sector and the services sector to the aggregate decline in the profit rate.⁹

Declines in the profit rates in both the goods sector and the services sector have contributed to the falling aggregate profit rate. As shown in Chart 3, the profit rate in the services sector fell from 28.7 percent in 1952 to 23.2 percent in 1981, and the profit rate in the goods sector fell from 32.2 percent to 22.1 percent over the same

⁷ When regressions like those described in footnote 6 were performed for the corporate and noncorporate profit rates, the time variable had a negative coefficient with a t-statistic greater than 3, while the cyclical variable had a positive coefficient with a t-statistic greater than 2 in both cases. Based on calculations using those estimated regression coefficients and the postwar average output gap, the cyclically adjusted corporate profit rate declined 8.9 percentage points between 1952 and 1981 while the adjusted noncorporate rate fell 4.8 percentage points.

⁸ The goods sector includes agriculture, mining, construction and manufacturing businesses. Along the lines used to divide personal consumption expenditures into sectors, the services sector is defined here to include transportation and utilities, wholesale and retail trade, finance, insurance, and real estate, as well as personal and business services industries.

⁹ Using output rather than physical capital as the base, the aggregate profit rate fell from 30.5 percent in 1952 to 22.8 percent in 1981. In addition, the decline in that revised measure of the aggregate rate was statistically significant in a Feldstein and Summers type regression.

period. Although the decline was somewhat more pronounced in the goods than in the services sector, the profit rates in both sectors showed significant downward trends, even after allowance for cyclical factors, thereby contributing to the decline in aggregate profitability.¹⁰

Changes in the relative sizes of the goods and services sectors offset part of the effect of declining profit rates in both sectors. Measured by the share of value added, the goods sector was slightly larger than the services sector in 1952. However, by 1981, the services sector was nearly twice as large as the goods sector. Since the profit rate has been higher in the services sector over most of the period, the increased relative size of the services sector would tend to raise the aggregate profit rate. As in the case of the corporate-noncorporate breakdown, however, the indirect effect of changes in the weights of the two sectors is insufficient to overcome the direct effects of declining profit rates in the two sectors. Consequently, the net effect of changes in the weights for the goods and services sectors and of changes in the sectoral profit rates was a decline in the aggregate profit rate.

In summary, neither of the breakdowns analyzed in this section implies that the aggregate decline in profitability was limited to a specific sector of the economy. Whether the economy is divided into corporate and noncorporate sectors or into goods and services sectors, declining profit rates appear to have been pervasive. Moreover, the declining profit rates cannot be attributed to cyclical factors or to more rapid growth in low-profit sectors.

¹⁰ Regressions confirm a statistically significant downtrend in both sectors. Adjusted for cyclical variation, the goods sector profit rate declined 8.7 percentage points between 1952 and 1981. The adjusted services sector rate declined 4.6 percentage points.

Industry components of declining profits

Decomposition of the aggregate profit rate into sectoral components, although illuminating in some respects, may still hide information that could be obtained from further disaggregation. Therefore, this section analyzes the decline in the aggregate profit rate by further subdividing the goods sector and the services sector into eight industry components. As for the sectoral breakdowns, the aggregate profit rate is a weighted average of the profit rates in the eight component industries. As such, the contribution of each industry to the overall decline in profitability includes both the direct effect of changes in the profit rate in that industry and the indirect effect of changes in the relative size of the industry.

Column 1 of Table 1 shows the percentage change of the profit rates from 1952 to 1981 for the four industries comprising the goods sector and the four industries comprising the services sector. Column 2 shows the ranking of each industry, where the rank of each industry is inversely related to the change in its profit rate. Thus, the industry with the largest decline in profits is ranked one, the industry with the second largest decline is ranked two, and so on.

The data in Table 1 show that seven of the eight industries in the economy experienced declines in their profit rates in the postwar period.¹¹ The decline was largest in agriculture, followed by wholesale and retail trade, personal and business services, and manufacturing. There were smaller though still appreciable declines in construction, transportation and utilities, and mining. Only finance, insurance,

¹¹ The percentage changes are computed for profit rates not adjusted for cyclical variation. Such an adjustment primarily reduces the magnitude of the decline in the profit rate of the manufacturing and construction industries. Removing cyclical variation does not, however, affect the industry rankings in Table 1 or any of the conclusions of the analysis.

Table 1
INDUSTRIAL ELEMENTS OF DECLINING AGGREGATE PROFITS

	(1) Change in Profit Rate 1952-1981	(2) Rank	(3) Total Contri- bution to Aggre- gate Decline	(4) Rank
Goods-Producing Industries				
Agriculture	-14.0	1	-2.9	2
Manufacturing	-10.9	4	-4.7	1
Construction	-7.0	5	-0.5	5
Mining	-1.5	7	-0.1	6
Services-Producing Industries				
Wholesale and Retail Trade	-13.9	2	-2.6	3
Personal and Business Services	-13.0	3	-1.0	4
Transportation and Utilities	-1.8	6	+0.8	7
Finance, Insurance, and Real Estate	+12.6	8	+3.8	8

and real estate showed an increased profit rate.¹² Thus, the downward trend in aggregate business profits has been pervasive not only among sectors but also among almost all industries in the economy.

To compute the contribution of each industry to the decline in the aggregate profit rate, it is necessary to consider the size as well as the change in profitability for the eight industries. The data in column 3 of Table 1 show the total contribution of each industry to the 7.2 percentage point decline in the aggregate

profit rate. The corresponding ranking of the eight industries is shown in column 4 of the table.

Comparison of the rankings in columns 2 and 4 demonstrates the importance of incorporating all the relevant factors in identifying the industries that have been primarily responsible for the decline in the aggregate profit rate. Although the largest percentage decline in profit rates was in agriculture, manufacturing contributed most to the aggregate decline in profitability. Because manufacturing accounts for

¹² Part of the increasing profit rate in the finance, insurance, and real estate industry is due to including Federal Reserve Bank profits according to the national income and product accounts industry definition. But even with Federal Reserve profits excluded, the industry's profit rate still increased 11.1 percentage points. However, there are other serious problems associated with the measurement of profit rates in the financial sector. Because of the difficulty in estimating the profit rate in financial businesses, and the

fact that net interest payments can be negative, Commerce Department estimates of financial business earnings are based on the imputed costs of the services they provide. Thus, the accuracy of the estimates are subject to considerable uncertainty and should perhaps be discounted, especially since the estimates indicate a sharp divergence from all other industries. Omitting financial businesses, though, would reinforce the case for a significant downtrend in aggregate profits.

such a large proportion of total output, smaller declines in its profit rate had a magnified impact on the aggregate profit rate.

Despite considering all the ways in which individual industries affect the aggregate profit rate for assessing the quantitative contribution of each industry, the qualitative conclusions are unaffected by doing so. Six of the eight industries contributed to the aggregate decline in profitability. Only transportation and utilities and the finance, insurance, and real estate industries had a favorable overall impact on the aggregate profit rate. As concluded in the previous analysis, therefore, the decline in aggregate profitability cannot be attributed solely to any single sector or industry.

Conclusion

The downward trend in aggregate profitability documented in this article shows that cyclical factors accounted for only a small part of the postwar decline. The pervasiveness of that secular decline in profit rates belies any simple explanation for the downward trend in aggregate profitability in the postwar period. Some analysts, for example, have suggested that the chief reason for declining aggregate

profitability might be slowing productivity growth in the mining and construction industries as well as in the services sector as a whole. Others have argued that declining profit rates in manufacturing associated with the imposition of strict environmental quality standards may have been primarily responsible. Although these may have been contributing factors, they do not fully explain the pervasiveness of the decline in profitability among sectors and industries. Instead, it seems likely that the significant downward trend in profit rates over the past three decades has resulted from the adverse consequences of other factors. If so, policy prescriptions to arrest and ultimately reverse the downward trend must take into account the inherent complexity of the problem if the policies are to be effective. To the extent that the causes of the decline have been multifaceted, so too must the policy remedies to deal with the problem be diverse. Without such policy remedies, the analysis presented here suggests that while the profit rate is likely to rise as the economy recovers from the 1981-82 recession, over the longer run, U.S. businesses' profitability will continue to decline relative to the early years after World War II.



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