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Edward Nelson

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The Monetary Base in Allan Meltzer's Analytical Framework

Edward Nelson
Federal Reserve Board

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Abstract

This analysis of Allan Meltzer's analytical framework focuses on the role that Meltzer assigned to the monetary base. For many years, Meltzer suggested that central banks should use the monetary base as their policy instrument, in place of a short-term nominal interest rate. However, he recognized that in practice central banks did not follow this prescription. He believed that the monetary base could play an important role even when an interest rate was used as the instrument. Meltzer's reasoning was twofold: (i) The monetary base might shed light on the behavior of important asset prices that mattered for aggregate demand. (ii) The base might serve as a useful indicator of the likely future course of the money stock. In later years, while still emphasizing the valuable indicator properties of the monetary base, Meltzer accepted that interest-rate-based rules could deliver monetary control and economic stabilization. For the situation in which the short-term nominal interest rate was at its lower bound, Meltzer continued to stress quantities as monetary policy instruments. He felt that, at the lower bound, the central bank remained able, through quantitative easing, to boost asset prices, the money stock, and the economy. Such stimulative actions implied increases in the monetary base; however, Meltzer did acknowledge that the manner in which the base was increased (that is, what asset purchases generated the increase) figured importantly in securing the stimulus.

Key Words: monetary base, money supply, transmission mechanism, monetarism.

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1. Introduction

Two quotations shape the analysis that follows of Allan Meltzer's research in monetary economics.

The first is Benjamin Friedman's (1988, p. 205) remark: "Allan Meltzer, throughout his voluminous corpus of writings (often coauthored with Karl Brunner), has consistently emphasized the role of fluctuations of the monetary base..."

The second is Meltzer's (1999) observation: "Monetary policy works by changing relative prices. There are many, many such prices. Some economists erroneously believe monetary policy works only by changing a single short-term interest rate."

Both these quotations convey crucial aspects of Allan Meltzer's analytical framework. But because one emphasizes quantities and the other stresses prices, the two quotations, taken together, highlight the need to confront and analyze seeming paradoxes in Meltzer's thinking about monetary matters.

Proceeding along these lines, the discussion below will aim to resolve five paradoxes in Meltzer's treatment of the monetary base.

Paradox 1. Brunner and Meltzer emphasized the effects that monetary policy has on a variety of asset prices (such as prices of interest-bearing securities and the price of "real capital"), yet they summarized monetary policy stance using (growth rates of) quantities (monetary aggregates, including the monetary base).

Paradox 2. Brunner and Meltzer stressed that monetary policy, in addition to changing a baseline interest rate, affected the risk or term premiums embedded in other yields on assets by altering the relative quantities of assets. Yet they often summarized policy stance using central bank liabilities (specifically, the monetary base, H —usually adjusted for changes in reserve requirements—or its growth rate).

Paradox 3. Brunner and Meltzer made the money-multiplier process endogenous by modeling the components of the multiplier (other than the required-reserve ratio)—but they often regarded a constant money multiplier as a good approximation for the purposes of policy analysis.

Paradox 4. Meltzer indicated that the concept of the money stock that mattered for nonbank private-sector portfolio decisions was one that included (some of) commercial banks' deposit liabilities—yet he often used the monetary base not only in analyzing the behavior of the money stock but also with direct reference to the behavior of aggregate nominal income, the price level, or aggregate output.

Paradox 5. Meltzer long acknowledged that a rule for the short-term nominal interest rate could, *in principle*, be workable and stabilizing—yet only late in his career did he grant that an interest-rate rule was a valid, and perhaps superior, alternative *in practice* to the use of the monetary base as the monetary policy instrument.

By concentrating on these five paradoxes, I provide an analysis that complements other retrospectives on Meltzer's view of the transmission process—including Bordo and Schwartz (2004), Ireland (2017), Laidler (1995), and Nelson (2003, 2004, 2017).

2. Scope and methodology of this analysis

In the resolution offered here of the five seeming paradoxes given above, no attempt will be made at an exhaustive analysis of the Meltzer canon of public statements.

The latter is in fact nearly *inexhaustible*. Meltzer, who died in May 2017, added to “his voluminous corpus of writings” for nearly 30 years after the 1988 Benjamin Friedman remark quoted earlier. As Lucas (1988, p. 137) put it: “it would be an act of folly... to review it [Meltzer's body of research] in a single paper.” One must also remember that Meltzer's various contributions on monetary matters appeared not only in research publications, but also in Congressional testimony and submissions over many years (roughly speaking, from 1960 to 2015). Furthermore, he was a prolific writer in the U.S. and U.K. financial press.

Consequently, the analysis in the following sections will consider only a subset of Meltzer's work. In analyzing this subset, deductions will be made about Meltzer's analytical framework by following a recommendation Meltzer (1992, p. 153) made in the context of studying Keynes' monetary framework. This recommendation was to glean an economist's views from their writings by focusing upon elements of “consistency, shown by repetition of ideas and thoughts.” That said, important changes in Meltzer's views will be noted when these are found.

3. Resolution of Paradox 1

The first seeming paradox listed above was that Brunner and Meltzer's research emphasized the effects that monetary policy has effects on a variety of asset prices, yet they summarized monetary policy stance using monetary *quantities* or by the growth rates of these quantities.

The resolution of this paradox is as follows: Although Brunner and Meltzer saw asset prices as the *link* between central-bank operations (for example, the central bank's open-market and discount-window transactions) and economic activity, they suggested that *a monetary quantity might convey overall policy stance well*.

Underlying this suggestion was the hypothesis that the private sector's spending on goods and services likely depended (*inter alia*) on an (unobserved) index of interest rates, and monetary growth might have a (short-run) inverse relationship with that index (see especially Meltzer, 2001). This position was in contrast to the argument of Tobin (1969) that the key asset price driving private spending was an observable equity-market variable (specifically Tobin's q).

To Meltzer, monetary aggregates were also likely to be a better index of spending-relevant (and monetary-policy-sensitive) asset prices than were observed nominal market interest rates. In particular, Brunner and Meltzer's (1968a) and Meltzer's (1976, 2003, 2009a) analysis of U.S. monetary and economic developments during the 1930s and 1960s stressed the Fisher effect—through which changes in expected inflation tended to generate changes in nominal interest rates—as a factor hindering the reliability of nominal interest rates as a measure of monetary policy stance. Meltzer observed that low short-term nominal interest rates had erroneously been taken by the U.S. authorities in the early 1930s as implying monetary ease, while rising (and, by then-historical standards, high) short-term nominal interest rates had erroneously been taken as implying monetary policy tightness in 1967 and 1968. Monetary growth (as measured by M1 or M2) was negative in the early 1930s and was rapid in 1967 and 1968, so it gave a better indication of monetary policy stance in both episodes than did nominal market interest rates.

One might agree about the importance of the Fisher effect and on the likely dependence of spending on a multiplicity of yields, yet challenge the suggestion that monetary growth should be used as indicator of monetary policy stance under these circumstances. After all, the argument for money's usefulness that is being made in this instance is not one in which a monetary aggregate or its growth rate itself appears in the structural equation describing spending behavior. It is instead an argument for an indirect approach of focusing on monetary growth

(real or nominal) instead of directly measuring the various spending-relevant (real) yields. Why not measure these yields directly? This question amounted to the objection voiced with regard to the monetarist position by Dornbusch (1976) and Svensson (2003).

The answer, according to Meltzer, was that there was a major problem of accurate measurement of a key asset price. In the monetarist transmission mechanism—sketched by Friedman and Schwartz (1963) and explicitly modeled (mathematically, albeit not with microeconomic foundations) by Brunner and Meltzer (1973)—the nonbank private sector holds (at least) three assets: money, interest-bearing securities, and real capital. Yields on the latter two of these assets appeared in the IS-type equation describing real aggregate spending behavior. Securities yields may be reasonably observable; they would need to be converted into real interest rates to deliver the yield relevant for real spending, but this may be feasible. The key matter is therefore: What is “real capital,” and how should we measure its price (or yield)? Brunner and Meltzer saw severe measurement problems in this area. They strongly urged “going beyond the two-asset world” (Brunner and Meltzer, 1981, p. 133) and including real capital in analytical models; but they were not confident about accurate empirical measurement of the extra asset price that such an expansion of a model entailed. For example, Brunner and Meltzer (1976, p. 178) contended that equity prices were too noisy to be used to obtain a valuable measure of the yield on capital. Meltzer (1993) tried instead using another observable price—the price of land—but the results were inconclusive.

More recent research conducted since Brunner and Meltzer’s heyday may mean that the best empirical proxy for the third yield is one related to a longer-term bond rate. Perhaps a composite of government and corporate interest rates might be relevant. This composite could be constructed, then an index of overall yields mattering for spending might be obtained via further aggregation of observed short- and long-term interest rates.

Consequently, it could be that improved measurement of important asset prices leads to an asset-price index that is comprehensively superior to money as an indicator of the aggregate-demand conditions put in place by monetary policy. For his part, however, Meltzer did not think that this point had been reached. He contended that nominal monetary growth Δm (or real monetary growth, $\Delta m - \Delta p$) was usually the best proxy available of the joint behavior of the yields that matter for private spending.¹ Money might proxy these yields well for two interrelated but

¹ As discussed below, monetary base growth might in some circumstances itself be the best stand-in for monetary growth, in which case the real money growth series would be $\Delta h - \Delta p$. (Here H and M are the dollar levels of the monetary base and the stock of money, respectively, while h and m refer to their natural logarithms. Changes of x

distinct reasons: injections of money resulting from central bank operations likely affected a variety of yields, and the money demand relationship may make variations in real money balances systematically related to key yields in the economy.

4. Resolution of Paradox 2

The second paradox outlined above consisted of the fact that Brunner and Meltzer stressed that monetary policy, in addition to changing a baseline interest rate (such as the federal funds rate or the Treasury bill rate), affected the risk or term premiums embedded in other interest rates by altering the relative quantities of assets—yet they often summarized policy stance using *central bank liabilities*—specifically, (growth in) the monetary base (usually adjusted for changes in reserve requirements).

The seeming paradox is brought out by considering this statement from Brunner and Meltzer (1966): “No critical issues of monetary policy, debt management, or fiscal policy are raised by the size of the Federal Reserve’s portfolio of securities. From the standpoint of monetary policy, the most important items on [the] Federal Reserve’s consolidated balance sheet [are] the volume and rate of change of Federal Reserve monetary liabilities—reserves plus currency, the monetary base. Unless the proposed changes in the volume of securities held by Federal Reserve banks produce changes in the monetary base, they will have no important monetary consequences for the economy.”

This 1966 statement may appear jarring in view of the fact that Bank of England and Federal Reserve officials (such as King, 1999, Bean, 2009, and Bernanke, 2002, 2012) have over the years cited Brunner and Meltzer’s work as part of the basis for a policy in which purchases alter the *asset composition of the central bank balance sheet* (thereby putting downward pressure on longer-term interest rates).

However, once again, a reconciliation is possible, and the seeming paradox can be resolved.

The resolution is that, as long as (short-term) nominal interest rates were positive ($R > 0$), Brunner and Meltzer regarded x percent growth in the monetary base as giving rise to approximately x percent monetary growth, and (with M being a multiple of H), most portfolio

percent in H and M correspond approximately to changes in value of x units in $100*\Delta h$ and $100*\Delta m$, respectively. P is the aggregate price index, so the inflation rate is $100*\Delta p$.)

balance reactions come from monetary growth, Δm —reflecting private-sector rebalancing in response to an enhanced stock of money. These reactions involving M could swamp the portfolio balance effects resulting from the central bank asset transactions that produced the initial change in the monetary base.

However, when the short-term nominal interest rate has reached its lower bound (that is, when $R = 0$), the (marginal) money multiplier may be small (monetary growth is less than monetary base growth: that is, $\Delta m < \Delta h$), and the principal portfolio balance effects may be those stemming from the central bank's alteration of the stocks of debt outstanding. *How* Δh comes about (that is, what assets are purchased by the central bank) then becomes crucial in determining whether there is appreciable stimulus associated with the increase in the monetary base as well as the magnitude of this stimulus. For example, at $R = 0$, a program of open market purchases of short-term securities may generate far less in the way of increases in commercial bank deposit liabilities, asset prices, and aggregate demand than an equal-sized program of open market purchases of longer-term securities, even though the two purchase programs would deliver the same scale of increase in the monetary base.

The resolutions to both Paradoxes 1 and 2 highlight the fact that, to Meltzer, the zero lower bound *is not* a special case in one sense and yet *is* a special case in another sense. As already stressed, at the zero bound ($R = 0$), the central bank's scope to raise both asset prices and M likely rests on *how* it increases H . As a precondition for generating an expansion of the money stock in zero-bound conditions, the central bank first has to provide an expansion of the monetary base sufficient to accommodate the increases—associated with lower interest rates and with the uncertainty of an adverse economic and banking climate—in the commercial banking system's desired reserve/deposit ratio and the nonbank public's currency/deposit ratio.² Having thereby stabilized the money stock, it then has to take operations that actually boost M . At the lower bound on short-term interest rates, unconventional open market purchases that raise H can still increase M (that is, generate Δm , though it may be that $\Delta m < \Delta h$ in this case) and also stimulate nominal and real aggregate demand. This reflects the likelihood that, when $R = 0$,

² The experience of the 2007–2009 financial crisis and its aftermath suggests that Meltzer's (2003, pp. 376, 495) historical account understated the role of uncertainty, and correspondingly overstated the role of low market interest rates, in boosting U.S. commercial banks' desire for excess reserve balances during the 1930s. Similarly, during his public commentary on current events during 2009 and 2010, Meltzer likely very seriously underestimated the increase in the reserve/deposit ratio that was due to a rise in uncertainty. This underestimation likely played a part in leading Meltzer, over this period, to make numerous erroneous predictions that a severe upsurge in U.S. inflation would follow from the large increase in the U.S. monetary base.

purchases of longer-term securities are more likely to generate asset-price rises and M expansion than purchases of riskless short-term securities.

There is therefore no liquidity trap in this framework, because monetary policy can always stimulate the economy.³ But, at the lower bound on short-term nominal interest rates ($R = 0$), the chosen type of open market operations becomes crucial in determining whether the monetary policy action does appreciably stimulate the economy. This was a message of Brunner and Meltzer (1968b), as acknowledged in some later analyses of the $R = 0$ case, such as Wonnacott (1974, p. 161) and Congdon (2011, p. 417).

5. Resolution of Paradox 3

The third seeming paradox noted above is that Brunner and Meltzer made the money-multiplier process endogenous by modeling the components of the multiplier (other than the required-reserve ratio)—but they often regarded a *constant money multiplier* as a good approximation for policy analysis.

The resolution lies in the conclusions that Brunner and Meltzer drew from their multiplier analysis. Brunner and Meltzer offered models of the individual components of the money multiplier (which for them was usually the M1 multiplier), other than the required-reserve ratio (which was a policy variable). They nevertheless regarded $\Delta m = \Delta h$ as a good approximation in normal times (which might be described as conditions of positive interest rates, widespread confidence in the commercial banking system, and satisfaction by commercial banks that they have achieved appropriate amounts of liquidity in their asset structure and equity capital in their liability structure). The condition of traditional money-multiplier analysis (see Rasche, 1993)—that the marginal money multiplier equals the average multiplier—then roughly prevails. That being so, Brunner and Meltzer saw variations in the multiplier, other than those attributable to trends, as largely comprising short-term stationary dynamics or one-time changes to the level of the multiplier—not variations that disconnected Δm from Δh over periods of a year or longer.

Hence Brunner and Meltzer (1969, p. 7) concluded that “changes in the monetary base are the main determinant of longer-term changes in the stock of money.” And Brunner and Meltzer

³ It deserves emphasis that, in keeping with the vast bulk of the twentieth-century monetary policy literature (including Meltzer’s work), the term “liquidity trap” is being used here to refer to a situation in which monetary policy is unable, using any tool available, to stimulate asset prices and spending. It is not being used simply as a label for a situation in which the short-term policy interest rate is at its lower bound.

(1981, p. 136) affirmed: “Our own work... shows that the multiplier approach is not incompatible with equilibrium analysis...”

Brunner and Meltzer were writing in an era that largely preceded such phenomena as sweeps, interest payments on reserves, and large-scale issuance of non-traditional central bank liabilities, —all of which would force major revisions to their money supply framework, even for the $R > 0$ case. Money supply theory is in a morass until these issues have been confronted satisfactorily.

The existence of these many complications does not, of course, imply the absence of any relationship, today or in the past, between the monetary base and the money stock. Nor does their existence overturn the notion that the base/multiplier approach provides, under specific conditions, a valid and useful description of the deposit-creation process. Indeed, the validity of the base/multiplier approach in certain circumstances was acknowledged even by some critics of that approach, such as Foot, Goodhart, and Hotson (1979, pp. 151–152).

Some further observations on the connection between the monetary base and central bank behavior are in order. Brunner and Meltzer (1981, p. 130) observed: “The central bank controls the stock of base money in a closed economy.” By this, they meant that central bank operations are felt in the behavior of the monetary base. Brunner and Meltzer recognized, of course, that central banks had rarely used the monetary base as an instrument and had seldom tried to set even the total-reserves portion of the base.

Meltzer also realized that central banks cannot, in the short run, drastically reduce (or dramatically alter the path of) the monetary base without creating great disruptions. But he stressed that, over longer periods, concerted central bank policies do play an important role in shaping the path of the monetary base and that, if desired, a smooth transition to a lower base path is achievable by open-market sales accompanied by temporary discount window lending.

Some critics of the base/multiplier approach (for example, Goodhart, 1994) have characterized actual central banks as letting the monetary base (or total reserves) adjust to M rather than *vice versa*. But to Meltzer, this was not a fundamental criticism of the base/multiplier approach. It was, rather, a *description* of how central banks might be too permissive in their operations and strategy, in a way that allowed the money stock to be procyclical (see Meltzer, 1967).⁴ He often

⁴ If one accepted this premise, one might nonetheless prefer to use the word “driver of” or “influence on” instead of “determinant of” in the Brunner-Meltzer (1969) quotation given above. Such a substitution would appropriately recognize the link between the monetary base and the money stock, while still reserving words like “cause” or

viewed interest-rate policies largely in terms of their implications for the trajectory of the monetary base and the associated permitted path for the money stock. From this perspective, the monetary base retains value as an indicator of what could happen to the money stock, even under conditions in which the nominal short-term interest rate is the central bank's policy instrument.

6. Resolution of Paradox 4

The fourth paradox laid out above was that Meltzer indicated that the money stock that mattered in nonbank private-sector decisions included deposits issued by commercial banks—yet he often used the monetary base not only in analyzing the behavior of the money stock but also with direct reference to the behavior of nominal spending, the price level, or output.

The resolution of this paradox lies in Meltzer's (2009b, p. 1130) suggestion that, in times when financial innovations create distortions to deposit behavior (for example, changes that blur the distinction between M1 and non-M1 deposits, or that involve growth of deposit substitutes not included in standard measures of the money stock), monetary base growth could be superior to measured growth in the money stock as a proxy for true, underlying monetary growth. In particular, Meltzer (2009a, 2009b) largely focused on monetary base growth when analyzing money/income relations.

The notion that Δh might be a valuable stand-in for Δm under conditions of financial change is not universally applicable. One example: The relationship between the monetary base and the economy is itself affected by financial innovation (such as automatic teller machines, debit cards, sweeps, and dollarization abroad), and innovation also complicates the adjustments of the base for changes in reserve requirements. A second example: In periods of surges in commercial banks' demand for reserves (in relation to their issuance of deposits), like the 1930s and the period from 2008 onward, monetary base growth is far more distorted than is measured money stock growth. Indeed, Meltzer (2003) used M1 rather than the monetary base when considering U.S. output behavior in the early 1930s.

“determine” for variables that are set exogenously. Alternatively, one might maintain that the fact that the monetary base reflects monetary policy actions, even when it is endogenous, justifies use of the word “determinant.”

7. Resolution of Paradox 5

The fifth and final paradox to be considered is that Meltzer long acknowledged that a short-term interest-rate rule could, *in principle*, be workable and stabilizing; yet only late in his career did he perceive an interest-rate instrument rule as a valid, and perhaps superior, alternative *in practice* to the use of the monetary base as the instrument.

The main resolution of this paradox lies in the fact that monetary policy developments and economists' research findings ultimately convinced Meltzer that interest-rate policies that were stabilizing were more achievable in practice than he had thought.⁵

In explaining this change of view, it is worth mentioning that Meltzer did not put particular stress on the discretion-versus-rules distinction as the way of framing his frequent disagreement with central banks on operating (or monetary-control) procedures. Brunner and Meltzer (1969, p. 19) seemed to express dissatisfaction with the “rules versus authorities” dichotomy, and Meltzer (1983, p. 95) would conclude that “every policy is a choice of rule.” Meltzer recognized that the interest-rate policy followed by a central bank was, or could be, a rule (that is, that the central bank's interest-rate reaction function is its “rule”). He also appreciated the fact that a rule for the interest rate could in principle achieve control of monetary growth and inflation.

As a practical matter, however, Meltzer was, for many years, very skeptical about whether the features required for an interest-rate rule to work really existed (see Meltzer, 1980a). He particularly doubted whether central banks had (i) sufficient information about the economy's structure; and (ii) the readiness to move R sufficiently and promptly.

These matters featured prominently in U.S. monetary policy discourse in 1979, when the debate on Federal Reserve operating procedures was at a crossroads. Meltzer (2009b, pp. 885–886, 897), in noting that until 1979 the FOMC used the federal funds rate to pursue Δm targets, observed that the FOMC routinely attained its desired interest-rate settings yet frequently missed the intermediate targets for monetary growth that these settings had been intended to achieve. Correspondingly, Meltzer (1979) contended that, in practice, the FOMC “just did not seem able to find the right interest target to get control of money growth.” Meltzer (1981, p. 23) outlined his concern about a pattern observed repeatedly when the private sector's demand for credit experienced declines. Such developments put downward pressure on market interest rates.

⁵ The appendix to this paper discusses a further possible reason for Meltzer's change in view: namely, a possible change in his assessment of the importance of different shocks that the U.S. economy faced.

“Central banks can delay the fall by slowing money growth, and they generally do. Money growth collapses as we enter recessions, and since the error is symmetric, money growth soars during expansions.”

What was needed for better monetary control, Meltzer suggested, was an arrangement in which market interest rates adjusted more promptly. For a long time, he saw the solution in the central bank stepping away from management of interest rates. Just ahead of the 1979 regime change, Meltzer (1980b) pointed to the inadequacy of “policies that move the fed funds rate an eighth of a point at a time.” Meltzer’s (and other monetarists’) proposed alternative was that the central banks should target money using the monetary base as the instrument. The interest-rate movements consistent with control of monetary growth (and ultimately of inflation) control then occur automatically.

Meltzer recognized that, irrespective of which operating procedures were adopted, a period of a higher federal funds rate and of recession was inevitable if disinflation was to occur. He said in January 1979: “There’s no way I know of to stop inflation costlessly. It’s a social question of whether you’re willing to take the temporary cost to stop inflation. If not, you won’t get rid of inflation.”⁶

Meltzer was extremely critical both of the FOMC’s pre-1979 interest-rate policy and its 1979–1982 regime, which centered operating procedures on control of nonborrowed reserves. In later years, Meltzer did not recant his position that the nonborrowed-reserves regime promoted fluctuations in the monetary base, the money stock, the term structure, and the economy of a magnitude that could have been avoided under a policy of direct control of the base (or by control of total reserves). But he would, in his retrospectives on the period, soften his criticisms of 1979–1982 policy—particularly the 1981–1982 portion, which he came to see as the prelude to an enlightened employment of an interest-rate reaction function during the 1980s and 1990s under Federal Reserve Chairmen Paul Volcker and Alan Greenspan (see Meltzer, 2009b).

Also during the early 1980s, Meltzer showed some signs of the thinking that led ultimately to his acceptance of the viability of (some) interest-rate rules. For example Meltzer (1982, p. 230) saw that an interest-rate policy could be marshaled to establish a firm resolve against inflation. He pointed to the early Thatcher experience in the United Kingdom: “Steps taken during the past year [1980] reinforce the belief that a change in policy has occurred. These include... a manifest

⁶ Quoted in Cronk (1979).

unwillingness to reduce MLR [the U.K. policy rate, minimum lending rate]... despite rising unemployment...”

It must be borne in mind, as well, that Meltzer was exposed during the 1980s and 1990s to McCallum’s (1981) favorable analysis of interest-rate rules and to the economics profession’s discussion of the Taylor (1993) rule. Also notable is the fact that Meltzer (2009b, p. 1241) highlighted “the Woodford model” (see Woodford, 2003), which oriented monetary policy and price-level analysis toward the central bank’s rule for the short-term policy rate.

The considerable U.S. economic stability experienced with an interest-rate instrument in the 1990s likely swayed Meltzer still further, especially as it occurred against a background of fluctuations in monetary velocity (for the monetary base and deposit-inclusive monetary totals alike). By 2009, Meltzer’s considered account was that monetarists should have put more stress on the scenario in which, when appropriately formulated, “interest-rate control would be effective and countercyclical.”⁷

8. Conclusion

Meltzer’s interest in the monetary base reflected neither a counterfactual belief that historical monetary policy involved direct targeting of the base, nor a view that base money or deposits mattered directly for spending decisions. Rather, it flowed from his hypothesis that base behavior can shed light on the implications of monetary policy actions (including those in an interest-rate policy) for asset prices, deposit creation, aggregate spending, and inflation.

However, Meltzer’s enthusiasm for the monetary base *as an instrument* did markedly diminish in later work, as he became more persuaded of the practical feasibility of stabilizing interest-rate reaction functions.

⁷ Meltzer (2009b, p. 1017). The changed Federal Reserve interest-rate policy reflected not just a greater willingness to vary interest rates, but also an alteration in the FOMC’s approach to the appropriate goals of, and strategy for, monetary policy. Meltzer (2009b) contended that this alteration took the form of an increased weight on inflation in policymakers’ objectives. This interpretation is challenged in Nelson (2012). The latter discussion argued, instead, that inflation was *always* rated by U.S. policymakers as very costly, but that the late 1970s saw an increased emphasis on the *responsibility of monetary policy for inflation*—as the FOMC came to accept a monetary view of inflation. It was also suggested in that review that Meltzer’s analysis of the 1950s through the 1970s would have benefited from a more systematic comparison with the quite different perspective offered by Romer and Romer (2002a, 2002b) on FOMC policy during those decades.

The future of the monetary base's status as an indicator depends on a number of factors. Among them is whether complications such as nontraditional central-bank-issued liabilities and the payment of interest on reserves can be integrated into good empirical models linking the monetary base, the money stock, and the economy.

It also depends on whether it is the case (as is widely believed—and contrary to Meltzer's doubts) that aggregate spending can be successfully analyzed empirically without the use of quantity variables—for example, by securing improved measures of key asset prices and interest-rate spreads and by obtaining reliable estimates of the natural real rate of interest.

Appendix: A further possible reason for Meltzer's change regarding interest-rate rules

A second possible reason for Meltzer's shift to a more favorable outlook on interest-rate rules—in addition to the reason given in Section 7 above—was a changed view after the early 1970s of business cycle shocks and dynamics.

During the early 1970s, Brunner and Meltzer were well disposed toward viewing historical business cycles as a consequence of policy-induced monetary “impulses”—basically, variations in monetary growth. Conversely, they downplayed nonmonetary shocks' inherent importance for short-run output fluctuations. Brunner and Meltzer also cast doubt on the existence of internal dynamics in output of a kind that spread over time the output effects of shocks.⁸ They conveyed the impression that potential output had few fluctuations around its trend.

In the Brunner-Meltzer view, real shocks mattered for output in the short run mainly insofar as the central bank accommodated them by letting them affect nominal monetary growth. From this flowed their frequent complaint that monetary growth was procyclical. Under a constant rate of monetary growth, the short-term interest rate would vary in response to real shocks—mirroring movements in the natural rate of interest—but output would, according to this view, be largely insensitive to these shocks.

After the first oil shock of 1973–1974, however, Meltzer put more emphasis on real shocks (noting both their temporary and permanent components) as drivers of real economic activity. He noted these shocks as factors also tending to produce one-time price-level changes—implying that monetary policy governed the ongoing inflation rate, but not necessarily the absolute price level (Meltzer, 1977).

Through his interactions at Carnegie Mellon University and in the Carnegie-Rochester Conference series, Meltzer was also heavily exposed to the achievements of the real business cycle (RBC) literature (including Kydland and Prescott, 1982) in explaining cyclical fluctuations via difference equations with real shocks and to the RBC literature's challenge to monetary accounts of output variation (see in particular, King and Plosser, 1984).

⁸ For example, Brunner and Meltzer (1972, p. 71) stated: “[We] assert that fluctuations in prices and output are most often the result of government policies, particularly monetary policies.” And Brunner and Meltzer (1976, p. 180) criticized business cycle research that “attributes fluctuations to... the pervasive effects of cumulated, serially and contemporaneously correlated random disturbances.”

McCallum's (1989, p. 41) assessment was that the RBC research findings made it "unlikely that many scholars today would subscribe to the proposition that all or most of the postwar fluctuation in U.S. output has been attributable to actions of the Federal Open Market Committee." Reflecting the spirit (if not perhaps the letter) of McCallum's assessment of the change in professional opinion, Brunner and Meltzer (1988, 1993) indicated a greater recognition of the importance of real shocks and of money's role in helping shape the response of output to real shocks.

In view of this increased recognition of nonmonetary shocks' importance for output fluctuations, Meltzer may have become more receptive to a nominal interest-rate rule that responded (possibly via responses to observable variables) to these shocks. For example, a well-specified interest-rate rule might be more successful than a constant-monetary-growth rule in keeping the actual real interest rate in line with variations in the real natural rate.

This interpretation of Meltzer's change in views should not be pushed too far. As noted above, even during the period when he doubted real shocks' importance for output fluctuations, Meltzer seemed to see real shocks as producing sizable variations in the natural real rate of interest (see, for example, Meltzer, 1969, p. 21). He viewed uncertainty regarding this natural rate as pointing toward the desirability of a monetary base instrument.

In sum, although Meltzer's view of real shocks' role changed during the 1980s and 1990s, this altered mindset may not have been crucial to his acceptance of the viability of interest-rate rules.

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