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Karl Brunner and U.K. Monetary Debate

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Abstract

Although he was based in the United States, leading monetarist Karl Brunner participated in debates in the United Kingdom on monetary analysis and policy from the 1960s to the 1980s. During the 1960s, his participation in the debates was limited to research papers, but in the 1970s, as monetarism attracted national attention, Brunner made contributions to U.K. media discussions. In the pre-1979 period, he was highly critical of the U.K. authorities' nonmonetary approach to the analysis and control of inflation—an approach supported by leading U.K. Keynesians. In the early 1980s, Brunner had direct interaction with Prime Minister Margaret Thatcher on issues relating to monetary control and monetary strategy. He was unsuccessful in persuading her to use the monetary base—instead of a short-term interest rate—as the instrument for implementing monetary policy. However, following his interventions, the U.K. authorities during the 1980s assigned weight to the monetary base as an indicator and target of monetary policy. Brunner's imprint on U.K. monetary policy has also been felt in the twenty-first century. Brunner's analysis, with Allan Meltzer, of the monetary transmission mechanism helped provide the basis for the policy of quantitative easing followed by the Bank of England.

Key Words: Karl Brunner, monetarism, monetary base control, transmission mechanism, U.K. monetary policy.
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1. Introduction

From the heyday of the Keynesian-monetarist disputes of the 1960s until his death in 1989, Karl Brunner closely monitored, and participated in, monetary policy debates in both Europe and the United States. In the case of Europe, this activity stretched beyond continental Europe (including his native Switzerland) to cover the United Kingdom—whose economic scene he had originally encountered firsthand as a student at the London School of Economics in 1937–1938.[1] The attention Brunner paid to U.K. monetary debate was highlighted in his 1970 paper, "The 'Monetarist Revolution' in Monetary Theory," which opened with the observation: "The Radcliffe Report published in 1959 offered little encouragement or scope to the development of monetary analysis." Brunner (1970, p. 1) proceeded to portray the development of the U.S. monetarist movement as in part a response to the Radcliffe Report—a report commissioned by the U.K. government and concerned with the United Kingdom's monetary system.

Brunner's interest in economic debates beyond the United States, his desire to engage on monetary issues in research and public discourse alike, and—especially—his inclination to write rebuttals to monetary analyses with which he disagreed, were all reflected in his activities in connection with the United Kingdom. His principal piece of research on U.K. monetary matters—Brunner and Crouch (1967)—was mainly a critique of the authorities' control methods and their associated view of how the money stock was determined. But in other writings and activities during the 1960s and 1970s, Brunner also directed criticism at the treatment offered by U.K. Keynesian economists—including several who were highly influential in policy circles—of the determination of aggregate demand and inflation. He particularly objected to their low rating of the importance of monetary policy for the behavior of both output and inflation, as well as their rejection of the money stock or monetary growth as a useful variable for assessing policy stance. In the 1960s and 1970s, these criticisms infused the coverage of the United Kingdom in Brunner's research papers and in his numerous contributions to the U.K. business press.[2]

In the course of these interventions, Brunner was outspoken in his opposition to the economic analysis offered by several major U.K. Keynesians: Richard Sayers, Roy Harrod, Nicholas Kaldor, John Hicks. But, despite writing direct rebuttals to these prominent U.K. economists, Brunner had trouble obtaining a high profile in U.K. monetary debate. In particular, he

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[1] See Marquis Who's Who (1993, p. 48).

[2] For the items mentioned in this paper, those consisting of contributions to the media are reported, in chronological order, in Section A of the references. Research articles, documents, and books are reported in alphabetical order in a bibliography that comprises Section B of the references.

encountered obstacles to being recognized as one of the leading proponents of the monetarist view. He perceived a "Friedmanitis" in U.K. discussions that was hindering him from being seen in the United Kingdom as one of the premier monetarists. This situation changed dramatically in 1980, when Brunner made headlines by meeting and advising the Prime Minister, Margaret Thatcher.

This paper critically analyzes Brunner's participation in U.K. monetary debate from the 1960s to the Thatcher era, as well as the "afterlife" that his monetary analysis has had in the United Kingdom. The analysis proceeds as follows. Section 2 gives an account of Brunner's contributions to U.K. monetary debate in the 1960s, including the Brunner-Crouch (1967) study mentioned above. Section 3 considers Brunner's participation in monetary debate in the 1970s, when he made numerous contributions to U.K. research and financial publications. Then Section 4 considers the Thatcher era—the period when Brunner played a more direct role in U.K. monetary policy discussions. Section 5 briefly considers the imprint that Brunner's work has left on U.K. monetary analysis. Section 6 concludes.

2. Brunner's participation in U.K. monetary debate in the 1960s

In a 1978 interview, Brunner would characterize economists' exchanges regarding monetarism as taking place "in scholarly journals and in the arena of public debate" (*The Banker*, July 1978, p. 20). For the United Kingdom's part of these exchanges, Brunner's contributions during the 1960s would be confined largely to research articles, rather than publications in public-policy and media outlets—a situation that would change in the 1970s.

This section considers the critique of U.K. macroeconomic analysis that Brunner articulated during the 1960s. Section 2.1 analyzes the challenge that Brunner and Crouch (1967) offered to monetary analysis in the United Kingdom. This is followed by a discussion of Brunner's opposition to the 1960s U.K. consensus regarding aggregate demand determination (Section 2.2) and the drivers of inflation (Section 2.3).

2.1 The Brunner-Crouch critique of U.K. monetary analysis

Brunner was based at the University of California, Los Angeles (UCLA) from 1951 to 1966 (Blaug, 1986, p. 126). It was at UCLA that Brunner drafted a lengthy manuscript on U.K. monetary policy in the early 1960s with Robert Crouch, who was a UCLA graduate student at the time. Brunner and Crouch's paper, titled "Money Supply Theory and British Monetary

Experience," was presented at a session of the December 1961 Econometric Society meetings, and a revised version was drafted in 1962 (as noted in Brunner and Meltzer, 1963, p. 321).

As the mid-1960s arrived with the paper still unpublished, the monetary analysis in Brunner and Crouch's paper was rapidly being superseded by Brunner's continuing work with Allan Meltzer.[3] In these circumstances, one option was to update the Brunner-Crouch paper comprehensively and secure publication as a journal article. Alternatively, it could have been revised to become a free-standing book. But Brunner did not exercise either of these options. Somewhere along the line, Brunner's enthusiasm about the project on the U.K. monetary system evidently waned. Indeed, when in 1966 he commissioned Anna Schwartz to write a study of the thinking underlying U.K. monetary policy implementation (Schwartz, 1969), he did not require her to cite his own paper with Crouch on the subject. He did proceed with publication of the Brunner-Crouch paper but, in effect, he largely consigned it to oblivion by placing the article outside the realm of U.S. and U.K. publications and in an outlet not specialized in economics. The published article (Brunner and Crouch, 1967) appeared in an obscure volume titled *Methods of Operations Research III*. This volume recorded the contributions—only some of them in English—to a Festschrift held in Germany in 1966.

The published version of the paper was considerably abridged from its early-1960s draft. But the revision still used data only through 1960—testament to the fact that the paper's eventual publication was an afterthought. Brunner nevertheless referred to the paper's findings (albeit without specifically citing the Brunner-Crouch article) in Brunner (1969a, 1973a). Furthermore, as will be seen below, the findings for the United Kingdom in the Brunner-Crouch article informed the policy prescriptions *for the United States* that Brunner laid out during the 1960s. The Brunner-Crouch (1967) analysis is additionally notable in light of Brunner's activism in U.K. monetary debate in the subsequent fifteen years. For, as will become clear in the course of the discussion below, the article partly anticipated, but was also partly superseded by, the perspective on U.K. monetary control that Brunner voiced during the 1970s and early 1980s.

Although it was guided by the Brunner-Meltzer "credit market" approach to money supply analysis, the Brunner-Crouch paper was primarily an empirical study of the United Kingdom for 1945−1960. One can examine the data used in their paper, because Brunner and Crouch (1967, pp. 97, 101) tabulated their annual dataset. In view of the fact that the article was written in an

[3] Brunner (1976a, p. 26; p. 58 of 1978 reprint) stressed the degree to which his monetary analysis developed from its state in the mid-1960s.

era when official U.K. statistics on the money supply and the monetary base were mostly absent, and before most of the authoritative research on U.K. monetary data had been done, the correspondence between the authors' dataset and the monetary series collected and used by later researchers is impressive. This correspondence is brought out in Figures 1(*a*)−1(*c*), which compare the values of monetary growth (growth in the total of currency and bank deposits), monetary base growth, and the change in the currency/deposit ratio implied by the Brunner-Crouch (1967) data with the corresponding series implied by Capie and Webber's (1985) book on U.K. monetary statistics.[4]

The Brunner-Crouch empirical study pointed up several analytical flaws in U.K. monetary analysis, as reflected in statements by Bank of England officials and by Richard Sayers. Sayers, of the London School of Economics, was not a policymaker but was, in effect, a policy "insider," having longstanding connections to U.K. officialdom and being a leading specialist on money and banking. Sayers had been instrumental in the preparation and drafting of the Radcliffe Report (Committee on the Working of the Monetary System, 1959; see also Sayers, 1960).

Ahead of a discussion of the key points on which Brunner and Crouch took issue with received U.K. monetary analysis, an important area of common ground with that analysis should be noted. The agreement was on using a broad definition of money.

Defining money in the United Kingdom

During the 1960s and 1970s, in their empirical studies of U.S. monetary behavior and their associated theoretical analysis, Brunner and Meltzer favored an M1 definition for money: that is, money was defined as including currency plus demand deposits but excluding time deposits (see, for example, Brunner and Meltzer, 1972a, p. 966). This represented a difference from the choice of a broad aggregate, M2 (M1 plus time deposits), made by Milton Friedman in such works as the *Monetary History of the United States* with Anna Schwartz (Friedman and Schwartz, 1963).

For their study of the United Kingdom, however, Brunner and Crouch (1967) clearly used a broad money concept. That is, money was defined as currency plus all commercial bank deposits—not only demand deposits ("current accounts" in U.K. nomenclature) but also time deposits (then often called "deposit accounts" in the United Kingdom). Indeed, Figure 1(*a*)

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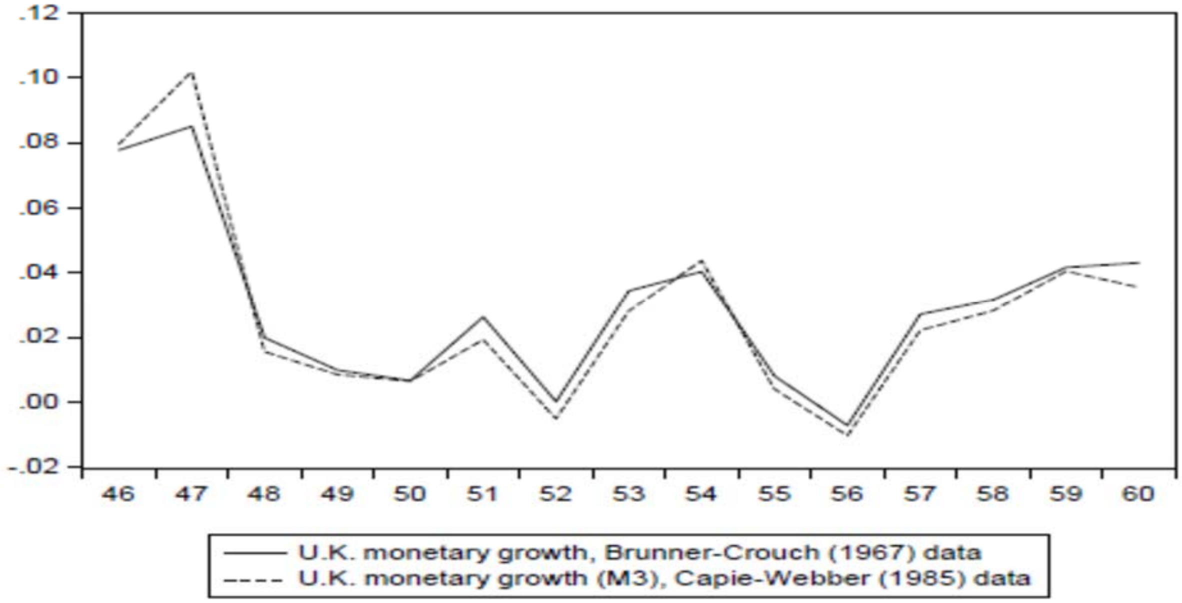
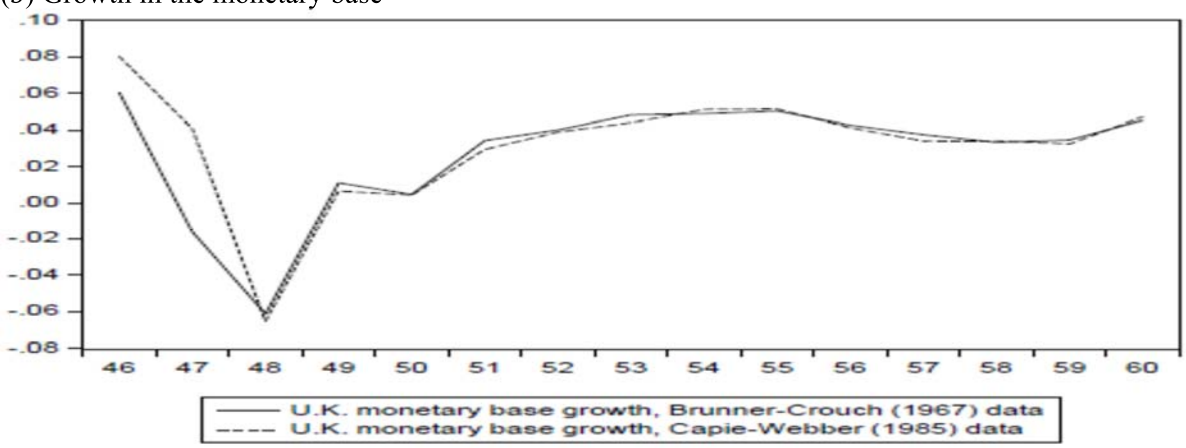
[4] The closeness of the series likely reflects the fact that, while there was not much in the way of official monetary aggregates before the 1970s, many of the components of the series were publicly reported.

Figure 1. Comparison of Brunner and Crouch's monetary data with later estimates

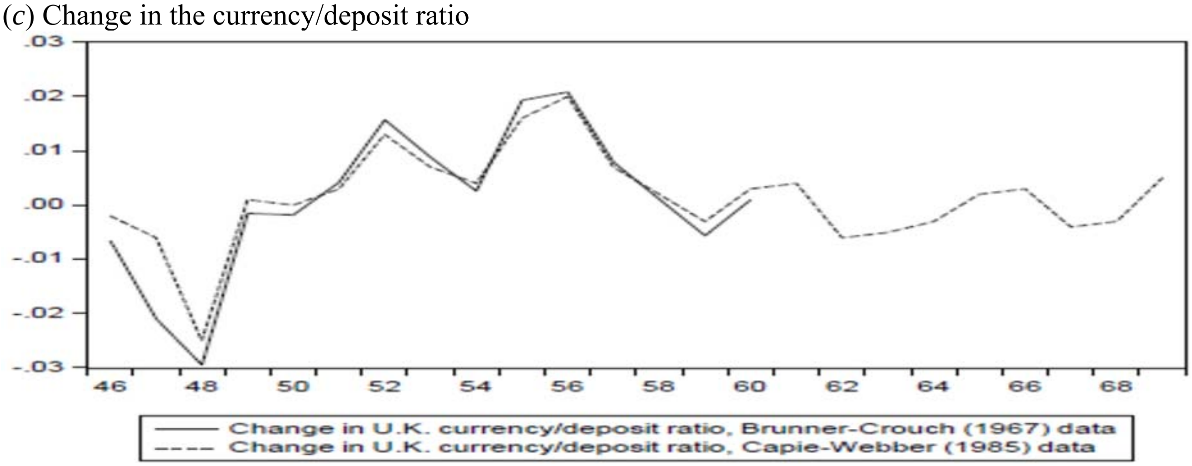
(*a*) Growth in the money stock



(*b*) Growth in the monetary base



(*c*) Change in the currency/deposit ratio



Note: The data displayed are in log-differences, except in the case of Figure 1(*c*), which plots arithmetic first differences.

shows that the Brunner and Crouch's series for monetary growth matches quite closely the growth in what became the M3 definition of money in the United Kingdom. During the 1950s and 1960s, this M3-type series was also conceptually close to the *Monetary History*'s M2 series, since both series encompassed currency and commercial banks' deposit liabilities.

Brunner and Crouch's acceptance of a definition of money broader than M1 was in keeping with the widely-observed phenomenon that U.K. households' time deposits shared important characteristics with demand deposits—far more so than in the United States. Specifically, it was contended either that U.K. time deposits could be directly used in transactions, with checks drawn upon time deposit accounts, or that funds residing in U.K. time deposits could be readily transferred, without significant penalty, into the holder's demand deposit account (Cairncross, 1960, p. 14; Newlyn, 1964, pp. 336−337; Capie and Webber, 1985, p. 15). Consequently, when in 1982 the Bank of England—in the wake of calls from Brunner, among others (see Section 4)—relaunched an official M2 aggregate for the United Kingdom, it was labeled a measure of "transactions money" (Bank of England, 1982).[5]

Brunner's acceptance of a broad money series for the United Kingdom was something he would revisit in the early 1980s. A key factor that would prompt his return to the subject was the emergence of wholesale banking. For the period ending in 1960, there was little need to consider the retail deposit/wholesale deposit distinction when analyzing commercial banks' deposit liabilities. The U.K. wholesale banking market was very sparse at that point. But wholesale deposits would subsequently became a very important element of U.K. commercial banks' liabilities, especially after the Heath Government's Competition and Credit Control (CCC) banking reform of 1971.

In the 1970s, and in contrast to the M2 broad money concept in the United States, the key official U.K. broad money aggregates (M3 and Sterling M3) were defined to include wholesale deposits. In the early 1980s, Brunner would express grave doubts about the merits of M3-type aggregates as indicators and as targets for monetary policy in the United Kingdom (see Section 4 below). As indicated above, these doubts were largely driven by the existence of a substantial wholesale component of M3 and questions about whether that component really should be counted as part of the economically-relevant money stock. But, as already implied, for the 1945−1960 period

[5] Indirect support for a symmetric treatment of M2 in the United Kingdom and M1 in the United States came in the findings by Artis and Lewis (1984) that, until the early 1970s, the real demand for U.K. M2 was visibly elastic with respect to U.K. market interest rates and that the velocity of M2 had risen in the postwar period. In contrast, in the United States, M2 velocity exhibited stationarity from the mid-1950s to around 1992, and a sizable elasticity of U.S. M2 demand with regard to market rates was usually recoverable only after conditioning on the "own rate" on M2.

studied by Brunner and Crouch, M2- and M3-type monetary totals essentially coincided: bank deposits were very largely retail deposits, and Brunner accepted that including all bank deposits in money was the appropriate way to proceed in defining the U.K. money stock.

Challenging U.K. monetary analysis

The preceding common ground between Brunner and Crouch and U.K. monetary policy practitioners did not extend into other areas of monetary analysis. In particular, Brunner and Crouch took issue with what they perceived as the official U.K. position on how the money stock was determined. Alternative theories of money supply determination were the focus of their paper. This point is worth stressing because—in contrast to Brunner's other writings on the United Kingdom—Brunner and Crouch's article had very little to say on the reactions of economic aggregates to monetary policy or on the authorities' views on this matter. In addition, the authors took for granted that the behavior of the monetary aggregates was of interest, both to themselves and to the U.K. authorities. In fact, as discussed in Section 2.2, Brunner and the U.K. authorities also parted company on the power of monetary policy and the value of monetary growth as a monetary indicator. But the Brunner-Crouch study was not primarily concerned with these disagreements.

Four major elements of Brunner and Crouch's analysis are now considered.[6]

I. *The relationship between debt management and the behavior of the money stock.* This was the matter on which Brunner and Crouch most criticized Richard Sayers, the Radcliffe Report, and the U.K. authorities. Brunner and Crouch believed, with considerable justification, both that U.K. monetary orthodoxy in the 1950s and 1960s posited a direct, mechanical linkage between debt lengthening (that is, an operation in which the authorities issued longer-term Treasury securities instead of, or as replacements for, short-term Treasury debt) and control of the money stock, and that this position had serious flaws. This Brunner-Crouch criticism was particularly important. For, although they directed their fire at views articulated by Sayers and others in the 1950s and 1960s, the view that long-term debt issuance was an important means of controlling the money stock survived into the next generation of U.K. monetary analysis. It became

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[6] An important claim in some U.K. monetary analysis of the 1950s and 1960s was that the volume of liquid assets (bills plus base money) held by banks served as the variable governing deposit creation (in contrast to the money-multiplier approach, which emphasizes banks' reserves holdings as the key variable). While this was an element of U.K. thinking that Brunner and Crouch (1967) criticized, it is not considered here, as its proponents were primarily U.K. academics rather than policy officials (see Batini and Nelson, 2005, pp. 60–63).

embedded in the "credit counterparts" approach to monetary analysis prevalent in U.K. official analysis during the monetary targeting era of the 1970s and 1980s.

A key part of the notion that debt lengthening reduced the money stock flowed from banks' behavior. As Sayers (1956, p. 182) observed, with the abandonment in the early 1950s of the "cheap money" policy in which the authorities pegged longer-term rates, commercial banks had reservations about holding long-term securities, owing to these securities' fluctuating market values. Sayers' view was that issuance of floating (that is, short-term) Treasury debt was very prone to lead to growth in commercial banks' deposits. This was because such debt, unlike longer-term debt, was often purchased by commercial banks. And in acquiring new assets, banks created new deposit liabilities. That line of reasoning led Sayers (1964, p. 260) to state that there was virtually "certain to be an increase in the volume of bank deposits" in the wake of an issuance of Treasury securities, unless the securities issued took an illiquid form (as longer-term government bonds did).

This position was specifically attributed by Brunner and Crouch (1967, p. 95) to Sayers, but they indicated that it was shared by officialdom in the United Kingdom. The latter attribution was well founded. The belief in a floating debt/deposit growth link motivated some of the monetary policy and debt-management operations taken in the United Kingdom during the 1950s (and later). For example, the *Financial Times* (May 20, 1957) reported that "the authorities have been obsessed by notions about the desirability of converting Treasury bills into bonded debt. This enthusiasm springs from the belief that such operations aid the tight money drive… by mopping up bank deposits and thereby reducing the supply of money…"[7]

This view implied that a reduction in the outstanding volume of short-term Treasury securities had a near-automatic downward effect on the money stock (and in particular on the deposit component of an M3-type aggregate). It was considered automatic in the sense that the reduction in the money stock did not require, or depend on, any effects that the debt-management operation had on interest rates or on banks' reserve balances.

In contrast, Brunner and Crouch argued that no such automatic reaction was assured: rather, "funding [i.e., debt maturity-lengthening] and 'unfunding' of public debt is quite unlikely to exert a significant effect on the money stock" (p. 90). Brunner and Crouch did not deny that commercial banks were prospective buyers of short-term debt. They also accepted that any bank

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[7] See also the testimony quoted and discussed in Schwartz (1969, p. 37).

that purchased securities was likely, in executing that transaction, to create deposits. But Brunner and Crouch argued that the authorities made the wrong inference from these points. Brunner and Crouch maintained that the authorities' reasoning, which led them to an approach to monetary control in which a limitation was put on the issuance of those securities (Treasury bills) that banks were inclined to buy, confused two different things: individual banks' decisions regarding a certain portion of their assets, and the factors driving total asset acquisition by the overall banking system.

In particular, Brunner and Crouch contended that, if the authorities altered the maturity of the public debt in a manner that left a smaller stock of Treasury bills available for commercial banks to purchase, it was not automatically the case that banks' deposit creation would be lower than otherwise. Such a debt-lengthening operation reduced the volume of bills that banks could buy, but it left the banks with the same quantity of reserve balances as previously. Consequently, Brunner and Crouch suggested, if, for a given quantity of reserves, commercial banks had less Treasury debt to purchase, they would achieve expansion of their balance sheet by making more loans to the private sector. Aggregate deposit creation would, therefore, be the same as it would have been without the debt-lengthening. If the debt-lengthening operation did not change commercial banks' desired reserve/deposit ratios, then banks would expand their assets, by extending their lending, until the preexisting desired ratio of reserves to deposits was attained.

Brunner and Crouch pointed to the quantity of reserves—rather than the maturity structure of the government debt—as the more critical policy-determined variable underlying bank deposit creation. This line of reasoning did not rule out, in principle, an important role for the public debt in driving the money stock. But Brunner and Crouch (1967, p. 90) stressed that money creation stemming from Treasury debt issuance really occurred not when *commercial* banks purchased the debt from the Treasury, but when the *central* bank did so. Such central-bank purchases (whether of short- or long-term debt) would add to the reserves component of the monetary base and leave banks in a position to expand their deposits. Brunner and Crouch accordingly cited the monetary base—and not the opportunities given to commercial banks to invest in short-term Treasury debt—as the factor that provided a possible link between the public debt and deposit creation.

II. *The role of the monetary base.* From the above it is clear that, as in Brunner's other work on the money supply, the monetary base played a key role in Brunner and Crouch's analysis of U.K. monetary behavior. Their analysis reinforced the message of Brunner (1961, p. 49): "The Radcliffe Report apparently misses the significance of the base."

Although the monetary base consisted of certain central bank liabilities (specifically, currency and commercial banks' reserve balances), policymaker influence on the base in the United Kingdom, as elsewhere, was in practice exerted by the central bank's operations on its holdings of assets (that is, on the "sources" of base money, in Brunner's preferred terminology). Central banks like the Bank of England could vary the aggregate monetary base (and, for given currency, the aggregate stock of reserves) through open market operations, provided that the effect of these operations was not offset by other policy measures, such as their discount-window lending, that affected their asset holdings.[8] Brunner and Crouch (1967, p. 93) found that, in the United Kingdom, open market operations affected aggregate reserves and not just the breakdown of the central bank's assets between its securities holdings and discount-window lending. Like many others (for example, Harrod, 1964, p. 194), Brunner and Crouch (1967, p. 103) further noted the stability (in their sample period of the initial postwar decades) of the reserve-to-deposit ratio in the United Kingdom. Under such circumstances, open market operations that altered total reserves provided a way of influencing the money stock. Brunner and Crouch suggested (p. 78): "Open market operations affected the money stock clearly and decisively." This led them to highlight "the fundamental importance of the monetary base in the money supply process" including that of the United Kingdom (p. 107).

III. *The importance of the currency/deposit ratio in key episodes.* Notwithstanding their conclusion, just quoted, about the importance of the monetary base, Brunner and Crouch's story concerning the U.K. money supply process involved an important caveat, as they recognized the empirical importance of variations in the currency/deposit ratio.

The change in the money supply, whether defined as M1 or M2, can be written as resulting from a change in the monetary base and in changes in the currency/deposit and reserve/deposit ratios (with these ratios defined conformably with the definition of money, and hence deposit total, selected). These two ratios' movements are the two sources of variation in the money multiplier. Brunner and Meltzer's research in the 1960s changed the base/multiplier framework from an identity to a theory of money supply determination by postulating that currency/deposit and reserve/deposit ratios, while having some cyclical dependence and interest sensitivity, were not ordinarily a major source of money-stock variation in the medium term.[9] In their theoretical

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[8] It deserves mention that the high degree of foreign exchange control in the United Kingdom during the Bretton Woods era gave the authorities considerable scope to use open market operations to offset the effect of balance-of-payments disequilibria on the monetary base. This provides some justification for Brunner and Crouch's (1967) lack of attention to an exchange-rate constraint in their account of U.K. monetary developments.

[9] They did recognize the importance of variations in the *required* reserve/deposit ratio by adjusting their monetary base series for changes in reserve requirements. Brunner was a pioneer in developing this adjustment (see Nelson,

analysis, this perspective led to the conclusion that their model's behavior mimicked what would be observed in a fixed-money-multiplier environment, even though the model had an endogenous money multiplier (Brunner and Meltzer, 1972a, p. 966).[10] In their empirical work, the corresponding conclusion was that the (adjusted) monetary base was the main source of variations in the U.S. money stock in the postwar period. This led to Brunner (1968, p. 9) to list among monetarists' major conclusions the finding that "the behavior of the monetary authorities dominates movements in the money stock over business cycles." Similarly, on the basis of his econometric examination of the sources of growth in M1 in the period 1948−1965, Brunner (1969b, p. 281) stated that, for the United States, "variations in the growth rate of the base… dominated the fluctuations in monetary growth."

For the United Kingdom, in contrast, Brunner and Crouch (1967) found an important role for the currency/deposit ratio in generating postwar movements in the money stock. There was a sharp downward movement in the ratio in the late 1940s, and the 1950s had seen sharp upward movements (that is, shifts in favor of currency holdings) in 1952 and 1956. The rises in the currency/deposit ratio in these years had been sufficient to dominate money stock behavior, with the money stock falling in 1956 despite a growing monetary base (see Figure 1).

Brunner was accustomed to regarding large shifts away from deposits and into currency as a thing of the past in the United States—being associated with such events as what Brunner (1971a, p. 46) called "the disastrous increase in the currency ratio from 1930 to 1933." But the United Kingdom in the 1950s had seen a couple of pronounced year-to-year increases in the currency/deposit ratio during a period when, unlike 1930−1933 in the United States, the banking system was well-functioning and stable.

This feature of U.K. monetary behavior left an impression on Brunner, as reflected not only in his later references to the finding in Brunner (1969a, 1973a) but also, as discussed below, in the qualifications he offered when making policy recommendations for the United States.

The sharp movements in the currency/deposit ratio in the postwar period amounted to a puzzle that Brunner and Crouch could not resolve: they acknowledged that they had not found an explanation for the movements in the ratio (p. 107). Later, Brunner (1973a, p. 507) acknowledged that U.K. data exhibited "variations in the currency ratio *k* which are difficult to

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2018a, Chapter 13). For the United Kingdom, changes in reserve requirements were minor in Brunner and Crouch's sample period, so allowance for them was unnecessary.

[10] See Nelson (2018b) for further discussion.

associate with current credit market processes or with feedbacks from the real sector"—that is, with the variables Brunner and Meltzer typically cited as producing variations in the currency ratio. Rather, Brunner admitted that the U.K. currency/deposit movements "seem to involve major 'autonomous' adjustments in the public's behavior." The inability of Brunner and Crouch to account for the sharp movements in the currency/deposit ratio may have been a principal reason for their settling for a low-profile outlet for publication for their paper.

The volatility of the currency/deposit ratio did not, however, affect Brunner's bottom-line position that the central bank could influence the money stock. Conditional on the variations in the currency/deposit ratio, Brunner and Crouch found the monetary base to be important, leading to their conclusion discussed under II above. Brunner and Crouch (1967, p. 94) summarized matters as follows: "Variations in the base and the public's relative currency demand thus dominate the behavior of the money supply." In addition, variations in relative currency demand still left the central bank in a position to set the course of the money stock using the monetary base, provided that it varied the base in ways that offset changes to the money multiplier induced by variations in the currency/deposit ratio.

This point, together with the lesson of the Brunner-Crouch findings for the United Kingdom, was reflected in Brunner's 1964 Congressional testimony, in which he made policy recommendations for the United States. Reflecting his and Meltzer's work on the United States, Brunner reaffirmed the dominance of the monetary base for money-stock behavior: "It [the adjusted monetary base] is also the most important determinant or the money supply's growth."[11] But, in remarks evidently informed by his study of the United Kingdom, he also cautioned: "Variations is the growth rate of the base should take account of other major determinants of the money supply, in particular, the currency flows between public and banks."[12] Hence Brunner's policy recommendation of constant monetary growth (specifically, M1 growth) led to an instruction about monetary base growth of the following kind: "The growth rate of the base should be stabilized around a constant-trend line. Deviations from this trend should only occur to compensate the effect on the money supply of substantial variations in the public's allocation of money balances between currency and checking deposits."[13] The variability of the money multiplier in the United Kingdom in the 1950s had likely prompted Brunner to qualify his policy recommendations for the United States.

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[11] From Brunner's testimony (of February 26, 1964) in Committee on Banking and Currency (1964, p. 1073).
[12] From Brunner's testimony in Committee on Banking and Currency (1964, p. 1060). Recall that the Brunner-Crouch study had existed for about three years by the time of this testimony.
[13] From Brunner's testimony in Committee on Banking and Currency (1964, p. 1075).

As it happened, the currency/deposit ratio exhibited much less instability in the United Kingdom during the 1960s than it had in the previous decade (see Figure 1(*c*)). Partly for this reason, the bivariate relationship between monetary base growth and broad money growth improved dramatically (see Figure 2): from a correlation of −0.003 in 1952−1960 to a correlation of 0.751 in 1961−1969.[14] Brunner likely became aware of the improvement in the relationship, for in 1970 he stated that the "monetary base dominates all the major movements of the money supply in all countries examined thus far" (*The Times*, September 7, 1970).

IV. ***Role of the interest rate in monetary policy*.** Like Brunner's other writings, Brunner and Crouch (1967) criticized the use of short-term interest rates as a measure of monetary policy stance. But their criticism seemed primitive compared with Brunner and Meltzer's published work from the mid-1960s onward. In particular, while Brunner and Crouch attributed to the U.K. authorities a belief in the significance of interest rates as an *indicator*, they insufficiently grasped that the U.K. authorities used short-term interest rates as a policy *instrument*. In particular, Brunner and Crouch (1967, pp. 94, 108) took U.K. officialdom as having, since the early 1950s, essentially let short-term interest rates be determined by the market. They interpreted the observed variability of U.K. interest rates over the postwar years as evidence against the notion that the U.K. authorities followed a practice of interest-rate stabilization (and, in particular, a policy of management of short-term rates). Brunner and Crouch therefore neglected to give adequate consideration to the possibility that central banks stabilized interest rates in the short run, while also adjusting them over time in response to economic factors. They also failed to acknowledge that the variability of the interest rate in the annual U.K. data might not be evidence against an interest-rate stabilization policy but could instead reflect the fact that many interest-rate reaction functions are likely to lead to considerable interest-rate fluctuations on annual data.

This distinction would become clearer as data from the 1960s and 1970s accrued. That later experience suggested that the U.K. authorities engaged in *too much* short-run stabilization of short-term interest rates, with this excessive stabilization producing excessive growth in monetary aggregates and inflation—raising medium- and long-run interest-rate variability.

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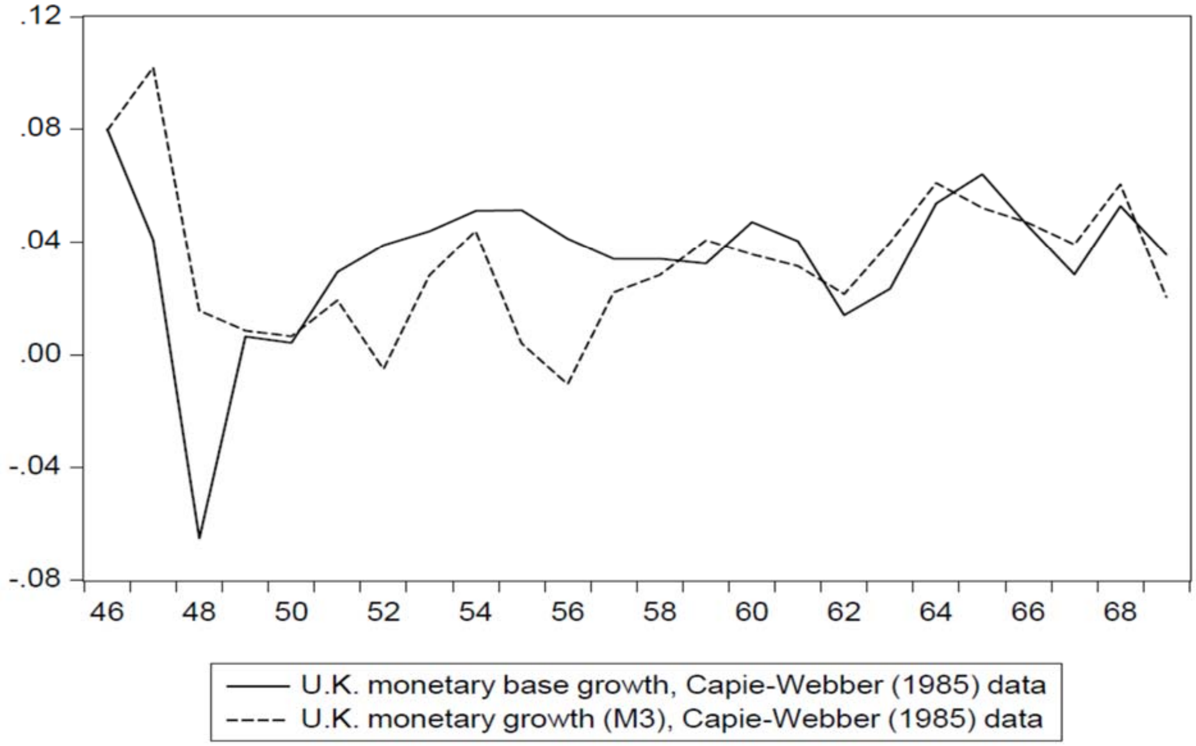
[14] The improved relationship is also reflected in the similar range of variation of the two series. A roughly constant money multiplier implies a roughly unitary relationship between the percentage changes, or log-differences, of monetary base growth and growth in the money stock, and this roughly unitary relationship is evident in Figure 2 for the 1960s. In addition, if one follows Brunner's (1974a) practice of evaluating the relationship between the two series by regressing monetary growth on same-period base growth (a practice to which critics would object, on the grounds that central-bank operating procedures make both series endogenous), one obtains a regression for 1962−1969 with an estimated slope on base growth that is 0.70 and is not significantly different from 1.0.

Figure 2. Monetary base growth and money stock growth, 1946–1969



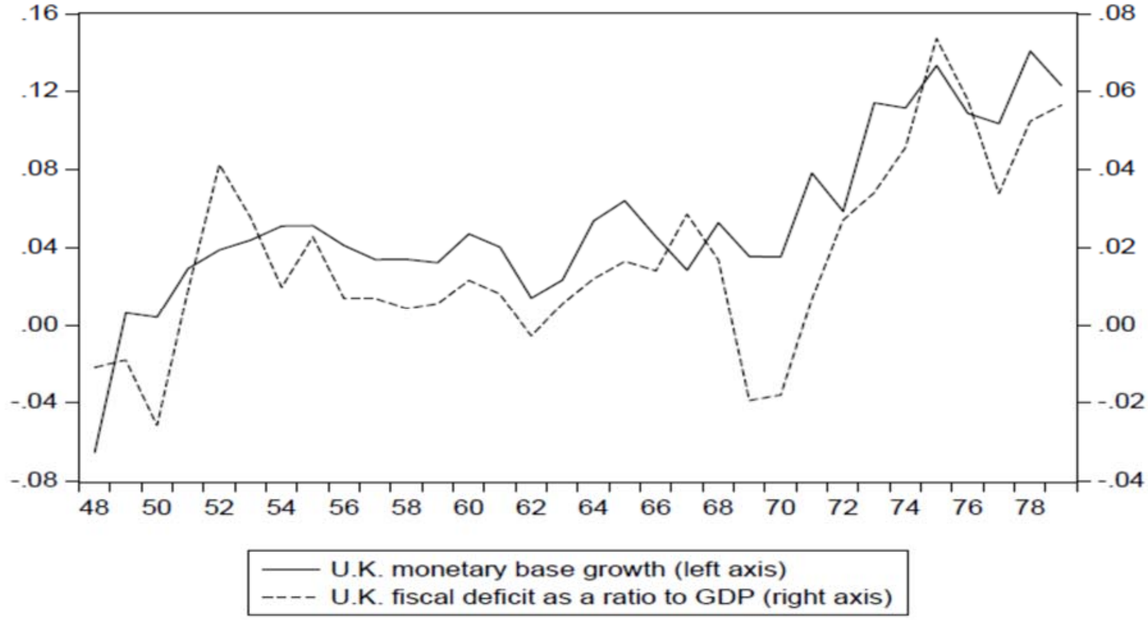
Note: The growth rates are log-differences of the annual averages on the levels series reported in Capie and Webber (1985).

The fact that the U.K. authorities did manage short-term interest rates overturns Brunner and Crouch's (1967) conclusion about the link between U.K. budget deficits and monetary base growth. As indicated above, the authors argued convincingly that a relationship between debt issuance and money stock growth largely relied on the monetary base being increased in response to a budget deficit. But the authors also noted that such an increase was likely to result from a policy that stabilized short-term interest rate in the face of Treasury deficits. Under that policy, Brunner and Crouch (1967, p. 90) argued, the central bank would offset, via base money creation, the upward pressure on interest rates induced by U.K. government borrowing. The authors contended that interest rates were *not* actually stabilized by the authorities—and so incorrectly concluded that the monetary base was not driven by Treasury borrowing.

In truth, however, there was a close relationship between monetary base growth and the U.K. fiscal balance: see Figure 3. The correlation between the two series is 0.809 for the period from 1948 to 1979.[15] It is true, as Brunner and Crouch (1967, p. 78) observed, that monetary base growth was quite stable in the 1950s. But this stability was, in fact, essentially a reflection of the

[15] The relationship is not apparent in the late 1960s, when fiscal tightening was accompanied by little change in monetary base growth. In this period, the U.K. government was being encouraged to control domestic credit

Figure 3. The U.K. fiscal balance and monetary base growth, 1948−1979



Note: Monetary base growth is calculated as in Figure 2 through 1970. From 1971, it is the log-difference of the annual average of the Bank of England's break-adjusted M0. The fiscal balance is the annual series on the U.K. budget deficit formerly reported in the International Monetary Fund's *International Financial Statistics*, expressed as a ratio to a modern series on annual U.K. nominal GDP obtained from the Federal Reserve Bank of St. Louis' FRED portal.

stability of the fiscal balance. The swings in the fiscal balance in the 1940s, 1960s, and 1970s were wider, and they largely made themselves felt in movements in monetary base growth.

By the early 1970s, Brunner's analysis of interest-rate reaction functions had become more sophisticated and he more clearly distinguished the notion of interest-rate variability from a situation in which interest rates were market-determined. He now accepted that the U.K. authorities managed short-term interest rates, and consistent with this, Brunner (1971a, p. 44) seemed to accept Kaldor's (1970) evidence of a link between the U.K. budget deficit and monetary growth in the United Kingdom (and hence implicitly between U.K. budget deficits and base money growth). Similarly, Meltzer (1980) noted that the "the present [U.K.] system almost assures that the Bank [of England] will finance large, unanticipated increases in the public sector borrowing requirement."[16]

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expansion. A corollary of this policy is typically that balance-of-payments surpluses (which the United Kingdom began to record in the late 1960s) go unsterilized and so affect the aggregate monetary base. Under these circumstances, fiscal tightness was might have been reflected in lower growth in the domestic-credit-expansion component of the monetary base but not in overall base growth.

[16] Meltzer's statement was, however, becoming obsolete. As discussed in Section 4, a less accommodative interest-rate reaction function after 1979, associated with the Thatcher Government, severed the relationship between deficits and monetary base growth.

2.2. Control of aggregate demand in the United Kingdom

Brunner did not write a comprehensive critique of U.K. officials' position on aggregate demand determination.[17] But he had occasion to comment critically on various aspects of the approach to monetary policy practiced by the U.K. governments in the 1950s and 1960s. There were four main aspects of this critique.

First, more than in the United States, U.K. policymakers and influential U.K. Keynesians in the 1950s and 1960s did not adequately appreciate the magnitude of the effects of monetary policy, both in its own right and in relation to fiscal policy. To Brunner, the doubts expressed in the Radcliffe Report about monetary policy's scope to restrict aggregate demand were a mirror image of Federal Reserve policymakers' statements in the early 1930s suggesting monetary policy could not stimulate aggregate demand: "the Radcliffe Report misinterpret[s] inaction as ineffectiveness of policy" (Brunner, 1969a, p. 502).

Second, the U.K. policymaking consensus in the 1960s tended to deprecate the importance of monetary aggregates as indicators of monetary policy stance. Even in the 1950s, money was only one of many financial variables to which U.K. officials referred in discussing monetary policy. They likely attached more significance to bank-lending aggregates than to monetary totals (see Schwartz, 1969, p. 34; Rowan, 1973, p. 24). However, the mid-1950s saw a fair amount of attention being given by U.K. officials to monetary aggregates in their analysis of the economic situation, and during 1957 top policymakers, including the Chancellor of the Exchequer, assigned a prominent role to control of the money supply in their public statements on inflation.

A backlash against this approach was manifested in personnel changes in the government in early 1958 and then, in August 1959, in the Radcliffe Report's dismissal of monetary aggregates. The Report—which is widely regarded as having been a major influence on the framing of U.K. economic policy in the 1960s—suggested the importance of a variety of interest rates for aggregate demand. In itself, this was an approach not inconsistent with the theory of the transmission mechanism that Brunner and Meltzer would develop. But, contrary to the Brunner-Meltzer perspective, the Report emphasized the *lack of* relationship between most of these rates

[17] His brief critique in Brunner (1969a) was accompanied by a promise of an "elaboration at another occasion." But Brunner did not follow up on this promise, perhaps because the major changes to the U.K. banking system due to the CCC reform in 1971 would have reduced the relevance of a critique of the system in operation in the 1960s. Some years after CCC, Brunner (1976a, p. 25; p. 57 of 1978 reprint) indicated that he and Allan Meltzer were writing a book titled *Theory and Practice of Central Banking*. But the book failed to appear.

and the money stock. Instead, it postulated that "liquidity," an unobserved aggregate far broader than money and including many nonmonetary assets of the nonbank public as well as some of its liabilities, was the quantity variable that was relevant for asset-price and aggregate demand determination.[18] The authorities took their cue from the Radcliffe Report's dismissal of the money stock. For example, James Callaghan would recall that during his period as Chancellor of the Exchequer (1964–1967), he and his advisers did not attach importance to the money supply (*Weekend World*, ITN, March 30, 1980).

Third, the authorities in practice neglected the nominal/real interest-rate distinction. As discussed in Laidler (1982) and Batini and Nelson (2005), this distinction was recognized in the Radcliffe Report in passing, but it played no notable role in U.K. officials' discussions of interest-rate setting until the start of the 1970s. The nominal/real interest-rate distinction was not covered in Brunner and Crouch (1967) or (as Laidler, 2018, stresses) in Brunner's (1968) outline of monetarism. However, from at least 1966, Brunner did point to the Fisher effect in discussing U.S. developments (see Nelson, 2018a, Chapter 13), and, as Section 3 below details, he would refer to it in his interventions in the U.K. monetary debate in the early 1970s.

Fourth, Brunner was critical of the U.K. authorities' reliance on direct controls on credit. Such measures, in his view, incorrectly put policymakers' focus on credit rather than money. Furthermore, insofar as credit control was a worthwhile goal, the authorities were trying to achieve this goal in the wrong way. Brunner regarded monetary policy measures, such as open market operations, that affected asset prices and financial institutions' incentives to expand as more efficient and effective ways of influencing aggregate credit creation, compared with mandated limitations on aggregate bank lending or on specific types of lending to the private sector. Direct credit controls, he suggested, would likely fail, as they would foster growth in the unregulated portion of the credit market. In addition, just as Brunner and Crouch regarded banks as likely to lend more to the private sector if discouraged from buying Treasury securities, direct limitations on banks' lending would likely lead them to expand their assets and liabilities by

[18] Although the Radcliffe Report rejected the money stock as a useful variable, it fortified the authorities' belief in the importance of debt-lengthening or funding policies as a means of restricting aggregate demand. This was partly because such operations, by replacing liquid assets with an illiquid assets (longer-term government securities), lowered the liquidity aggregate to which the Radcliffe Report attached importance.

The Radcliffe Report also suggested that there was some value to (resuming) official management of U.K. long-term interest rates. In pursuing this suggestion during the 1960s, the U.K. authorities viewed long-term interest-rate control as possible because markets were essentially segmented: long-term rates could be disconnected from short-term rates (see Nelson, 2009a, pp. F347–F348 and F356). This contrasted with Brunner and Meltzer's analysis, which suggested that long-term interest rates were influenced by monetary policy via multiple channels, but which also implied that the authorities could not achieve separate targets for short- and long-term interest rates.

increasing securities investments.[19] The upshot was that "such controls exert a negligible effect on the money supply and the total volume of bank earning assets" (Brunner, 1969a, p. 502).

The Radcliffe Report, while believing in the importance of credit for aggregate demand, had itself also stressed the likelihood of evasion of direct credit controls. Consequently, the Report had remarked negatively on the value of such controls (Committee on the Working of the Monetary System, 1959, p. 134, paragraph 394). Nevertheless, in the wake of the Radcliffe Report U.K. policy moves went in the direction of maintaining and extending direct controls on credit (Batini and Nelson, 2005, p. 55; Aikman, Bush, and Taylor, 2016). Brunner (1969a, p. 502) complained of the credit-control measures taken by the U.K. authorities during the 1960s that they had regarded as restrictive: "Many times[,] however, the actions actually performed have no effect on the money supply and aggregate demand."

2.3 The United Kingdom's cost-push consensus

As discussed in Laidler (1976, 2003) and Nelson (2005, 2009a), U.K. officialdom in the 1950s and 1960s had a consensus favoring a nonmonetary approach to the analysis and control of inflation.[20] This approach was based on pure cost-push theories of inflation. The approach continued in the United Kingdom in the years from 1970 to 1979 (a decade during which cost-push views also were prominent in U.S. officials' thinking about inflation).

U.K. policymakers in the 1950s through 1979 believed that inflation and nominal wage growth were insensitive to negative output gaps. Aggregate demand, according to the U.K. consensus, could add to inflation by pushing output above potential and thereby supplementing existing cost-push pressure on inflation with demand-pull pressure. But measures that kept output, for a time, below potential by a fixed amount would not remove inflationary pressure. Rather, when output was below potential, the forces driving inflation were believed to be autonomous forces that were not dependent on the output gap. The autonomous sources of inflation prominently included wage-push—created, it was believed, by labor unions. A negative output gap was not seen as effective either in curbing wage-push or in containing the transmission of nominal wage growth to inflation. U.K. policymakers consequently repeatedly turned to wage and price controls, as well as measures designed to affect specific prices, as their anti-inflation policy.

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[19] Brunner made this aspect of his critique of lending controls especially central in Brunner (1976b, pp. 61, 75).
[20] The principal exception, as already noted, was in 1957, when senior policymakers, but not wider officialdom, attached particular importance to monetary control as an anti-inflation weapon.

This characterization of U.K. official thinking may appear to contradict the fact that Phillips-curve analysis, which highlights a dependence of prices and wages on resource gaps, sprung in part from a U.K. research literature in the 1950s and 1960s. There is no contradiction, however, as Phillips-curve analysis, though appearing in U.K. research journals, was not accepted by U.K. policymakers or by senior U.K. Keynesians.[21] For example, in a 1969 special issue on inflation in the *Wharton Review*, Harrod (1969a, p. 6) stated that, while "the Phillips curve has had great publicity," it was the case that in the U.K. postwar data there was not "any correlation between the level of unemployment and the rate of increase of wages."

The U.K. cost-push consensus was inimical to Brunner's monetarist perspective on inflation. Brunner (1981a, p. 1053) would criticize Keynes' *General Theory* for promoting cost-push views of inflation by endorsing a channel from autonomous wage-push to prices. In the same *Wharton Review* symposium in which Harrod participated, Brunner observed that historically "inflations occurred with and without trade unions, [and] with or without legislation prohibiting or supporting unions" (Brunner, 1969c, p. 25). He noted that monetarist analysis did not deny many short-run influences on inflation, but that it insisted that a sustained effect of these factors on inflation required that they produce a "substantial increase in the money supply (relative to output)" (Brunner, 1969c, p. 26).[22]

The same discussion acknowledged that the link between monetary growth and inflation rested on a connection between economic activity and prices (that is, a Phillips-curve mechanism) (1969c, p. 26). Furthermore, in the mid-1960s Brunner had written that "over the long run, employment and employment potential move closely together" (Brunner, 1966, p. 9). He was therefore highly receptive to the Friedman-Phelps development of the Phillips curve, which reconciled three phenomena in which Brunner believed: the influence of monetary policy on inflation over the business cycle and in the long run; short-run effects of monetary policy on real variables; and a zero output gap in the long run.[23] As McCallum (1994) noted, Brunner was not active in the empirical Phillips-curve literature. But, as the next section details, his contributions to U.K. monetary debate endorsed and promoted the idea of a short-run nonvertical, and long-run vertical, Phillips curve.

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[21] See Nelson (2001, 2009a), Nelson and Nikolov (2004), and DiCecio and Nelson (2013) for extensive documentation of the rejection of Phillips-curve analysis.
[22] In an analysis that elaborated on the effect of cost-push shocks in the behavior of nominal wage growth and price inflation, Brunner (1976a) concluded that, in the absence of monetary accommodation of the shocks, they were likely to be only a source of short-term variations in the two series.
[23] See Friedman (1968) and Phelps (1967).

3. Brunner and the U.K. debate on monetarism in the 1970s

The Keynesian-monetarist debate attained greater prominence and intensity in the United Kingdom during the 1970s, and Brunner entered proceedings by contributing a guest op-ed article, "Controlling the Money Supply," to the London *Times* of September 7, 1970. Brunner's piece got some details about the U.K. background wrong: he gave the date of the Radcliffe Report as 1958 instead of 1959, referred to the Bank of England's formal governing body as its "Board of Governors" rather than the Court, and he seemed to misconstrue the Court's importance in the articulation and shaping of official thinking about monetary policy. In fact, the Court did not make monetary policy, which until 1997 was ultimately decided upon by the U.K. Chancellor of the Exchequer. And the Court's contribution to explaining policy publicly was minor compared with statements from the Treasury, speeches by the Bank Governor and other officials, and Bank of England publications like the *Quarterly Bulletin*.

But, in contrast to Brunner and Crouch (1967), Brunner's *Times* article clearly recognized that U.K. monetary policy was oriented toward control of short-term interest rates. Indeed, the article suggested that his preferred policy—a constant monetary-growth rule implemented with the monetary base as the policy instrument—could be achieved in the United Kingdom after a transition period. During the transition, the interest rate could continue to be the policy instrument but control of monetary growth would receive more weight in the setting of policy.

Taking on Kaldor

The interest-rate control procedure followed in the United Kingdom also featured heavily in an article, "The Monetarist View of Keynesian Ideas," that Brunner published in the October 1971 issue of *Lloyds Bank Review*. This article was a rebuttal to a piece by Nicholas Kaldor titled "The New Monetarism" which had appeared the same journal the previous year. Kaldor had placed great emphasis on reverse causation from income growth to monetary growth as the source of the observed money/income correlation. Kaldor had also pointed to the historical use of an interest-rate instrument by the U.K. authorities and suggested that this rendered invalid much of the monetarist interpretation of historical relationships. Brunner's (1971a) reply stressed that an interest-rate instrument did not imply that monetary growth did not reflect monetary policy developments. In addition, he underlined the resilience of the money/income relationship under different interest-rate policies. And he defended the applicability of a money-multiplier approach to analyzing money supply determination to situations of interest-rate-based monetary policies: "one will find that the monetary base assumes a central role in the money supply process" and this "role of the base with respect to the money stock does not depend on its exogenous or endogenous nature" (Brunner, 1971a, p. 45).

The early pages of the reply conveyed Brunner's livid reaction to Kaldor's characterization of the U.S. monetarist literature. Kaldor had portrayed this literature as driven almost entirely by Milton Friedman. Brunner criticized this as a "dramatic simplification" of the "genesis of monetarist ideas" (p. 36) and as reflecting "Friedmanitis" on Kaldor's part (p. 37). Monetarism, Brunner insisted, had originated with research "at various universities" (p. 35) and it was "either ignorance or carelessness" for Kaldor to trace monetarism solely to Friedman (p. 49).

Although Brunner's article had little in the way of bibliographical references, it was clearly concerned with ensuring that accounts, like Kaldor's, that minimized the part he had played in promotion of monetarism did not become standard, and to make sure that his own publications of the 1957−1969 period would be recognized as contributions to the monetarist literature. A little ahead of the appearance of his reply to Kaldor, Brunner told a symposium held in Germany that while he did not wish to "detract from the unique importance of Milton Friedman's work," he wanted to make it clear that "the intellectual history of the monetarist ideas cannot be equated with Milton Friedman" (quoted in Giersch, 1972, p. 149).[24]

Brunner's reply to Kaldor consequently emphasized that "monetarism" and Friedman were not synonymous. But, though many authors have attributed the term "monetarist" or "monetarism" to Brunner himself (and specifically to Brunner, 1968), Brunner made no such claim of authorship of the term in his response to Kaldor. In fact, the terms "monetarist" or "monetarism" had been used frequently in Latin American debates on inflation before Brunner used them (see Boianovsky, 2012; Laidler, 2001; Nelson, 2009b, p. 484). Nor is it the case that Brunner (1968) introduced these terms to the U.S. Keynesian-monetarist debates. They had been used to describe Friedman's views on money as early as 1963 (see Nelson, 2018a, Chapter 13) as well as in succeeding years: for example, Siegel (1966, p. 2) referred to "monetarists such as Milton Friedman." Brunner promulgated these terms, but he did not himself introduce them.

No doubt to Brunner's irritation, Kaldor did not write a rejoinder to Brunner's response. Kaldor continued to focus on Friedman in his discussions of monetarism. Indeed, after 1971 there was little in the way of a set-piece debate Brunner and hardline U.K. Keynesians. Brunner included a contribution on monetarism from Joan Robinson in the *Journal of Money, Credit and Banking* in

[24] Nelson (2018a, Chapter 13) extensively analyzes the connections between Friedman's and Brunner's research.

1970, but he published no response to it. Nor did Brunner put in his later *Journal of Monetary Economics* and *Carnegie-Rochester Conference on Public Policy* journals any direct debate between himself and U.K. Keynesians, although he did publish, in both journals, other authors' articles on U.K. monetary matters.[25] The closest he came to a post-1971 exchange with U.K. Keynesians was in 1981, when he and Kaldor had back-to-back articles in *Lloyds Bank Review* (Brunner, 1981b; Kaldor and Trevithick, 1981). Brunner and Kaldor did not, however, refer to one another in their respective articles.

Explaining high U.K. inflation

In contrast, during the 1970s Brunner did have extensive engagement with members of the U.K. policy agencies, especially Charles Goodhart of the Bank of England. A Bank *Quarterly Bulletin* article by Goodhart and Crockett (1970) indicated U.K. officials' enhanced interest in the importance of monetary aggregates in monetary analysis. But Brunner (1971b, p. 168) was not satisfied with this shift, feeling that the article still showed "excellent conditioning by the standard Keynesian framework." A dialogue ensued between Brunner and Goodhart, notably via Goodhart's attendance of the Konstanz seminar that Brunner held annually in continental Europe (see Fratianni and von Hagen, 2001). As discussed in Section 4, however, Goodhart was, and remained, strongly opposed to Brunner's proposal for a move of central bank operating procedures toward monetary base control.

Part of the reason for the resilience in the United Kingdom during the 1970s of cost-push views of inflation was that the country's experience of simultaneously rising inflation and unemployment in the early years of the decade was perceived as validating those views. Not only were these outcomes at variance with a simple Phillips curve, but some commentary, such as that of Johnson (1972, pp. 59–60), suggested that monetarist accounts could not explain them either. In contrast, Brunner (1971a, p. 41) insisted that the expectations term in the augmented Phillips-curve relationship could account for periods of stagflation: therefore, cost-push accounts, attributing "stagflation… to the wickedness of trade unions," were not needed to rationalize the stagflation phenomenon.

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[25] As well as the items discussed below that pertained to U.K. monetary policy developments in the 1970s and 1980s, Brunner published critiques of the views expressed from the 1930s through 1960s by U.K. Keynesians and U.K. officials' on monetary policy, aggregate demand, and inflation in both the *Journal of Money, Credit and Banking* (see Hodgman, 1971) and the *Journal of Monetary Economics* (see Tavlas, 1981). (Brunner was editor of the *JMCB* from 1969 to 1974 and of the *JME* from 1974 to 1984: see Blaug, 1986, p. 126.)

Brunner included Friedman's (1968) article on the natural rate of hypothesis in a German-language book of readings on monetary theory (Brunner, Monissen, and Neumann, 1974). In 1971, Brunner offered a wholehearted endorsement of the hypothesis, associating with "monetarist analysis" the notion that "the long-run Phillips curve admits no tradeoff between unemployment and inflation" (Brunner, 1971a, pp. 40–41).[26]

However, other Brunner statements on the matter in the 1971–1972 period were more equivocal. Brunner (1971c, pp. 63–64), like Laidler (1971, p. 83), noted that the coefficient on the expectations term in the Phillips-curve relationship did not need to be as high as unity to deliver considerable stagflationary dynamics. Merely a sizable coefficient was sufficient for this purpose. Indeed, in a contribution to a conference at Oxford University in July 1972, Brunner and Meltzer (1973, p. 46) characterized the empirical investigation into the long-run Phillips curve by researchers as ongoing and—while again affirming a sizable expectations coefficient—indicated that they regarded the issue of whether the long-run Phillips curve was fully vertical in the long run as still open. In April 1973, however, Brunner and Meltzer convened the first Carnegie-Rochester Conference on Public Policy on the subject of "The Phillips Curve and Labor Markets." The balance of contributions to this conference, along with Brunner and Meltzer's (1976a) introduction for the published proceedings, was strongly in favor of the natural rate hypothesis, reflecting the fact that research results and data outcomes over the previous year had strongly supported natural-rate theory. The conference focused mainly on the United States. But Brunner (1975, p. 847) relayed his belief that a long-run Phillips curve provided a good account of economic behavior for the United Kingdom as well.[27]

Brunner did not, however, rely exclusively on expectational dynamics in accounting for stagflation in the United Kingdom, which got worse in 1973–1975. As additional factors worsening the unemployment/inflation relationship, Brunner (1975, p. 847) referred to evidence that improved unemployment-benefit provision in the United Kingdom had raised the natural rate of unemployment, while Brunner and Meltzer (1979, p. 6) also pointed to U.K. labor laws as

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[26] As this passage of Brunner (1971a) amounted to an endorsement of the empirical relevance of the natural rate hypothesis, without pointing to specific empirical evidence on the hypothesis, it may have been one part of the article that prompted the comment of Balogh (1982, p. 235) that Brunner (1971a) seemingly relied on assertion.

[27] Notwithstanding his awareness, discussed presently, that U.K. policymakers in the 1960s and 1970s had a cost-push view of inflation, Brunner occasionally fell into the trap of implying that U.K. *policymakers*, and not just some academics, had been guided by a belief in an exploitable, permanent-tradeoff Phillips curve and of suggesting that the policies that produced inflation outcomes up to the mid-1970s could be interpreted in that light. For example, in Congressional testimony on February 4, 1977, Brunner proclaimed: "Contrary to prevailing notions guiding policies over most of the 1960s in Western countries[,] higher inflation did not push the economy into a range of lower unemployment rates." (In Committee on Banking, Finance, and Urban Affairs, 1977, p. 154.)

a factor. Further developments that Brunner cited as lowering the United Kingdom's potential output in the early and mid-1970s included the increase in the size of the public sector (Brunner, 1976c, p. 81) and the first oil shock (Brunner, 1983a, pp. 46, 50; 1983b, p. 99).

Other aspects of the Keynesian-monetarist debate

Amid the disputes on aggregate supply, Brunner continued to press monetarist positions on aggregate demand determination in commenting on U.K. matters. He found fault with much Keynesian analysis for neglecting the Fisher effect, and in 1971 Brunner published a review of Roy Harrod's (1969b) book on monetary theory. Brunner (1971d, p. 503) criticized Harrod for embracing "the Keynesian denial" that anticipated inflation mattered for nominal interest rates. Additionally, his reply to Kaldor had emphasized the limited effectiveness of fiscal actions—if not monetized—as a means of varying aggregate demand. In the mid-1970s, Brunner combined his emphasis on real interest rates and on the limited effectiveness of "pure" fiscal policy by suggesting that crowding out of private spending might be important in understanding developments in the 1970s. He and Meltzer wrote an article in the London periodical *The Banker* specifically on crowding out, with the implication that it was empirically relevant for interpreting recent U.K. macroeconomic developments (Brunner and Meltzer, 1976b).

The U.K. experience did not, however provide an ideal example of crowding out, for two main reasons. First, crowding-out arguments are most applicable to fiscal policy actions that are not accommodated by monetary policy. But, as Figure 3 indicated, fiscal deficits generally *were* accommodated by monetary policy until 1979. Indeed, Brunner (1974b, pp. 180, 194−195; 1976c, p. 81) stressed that the fiscal expansion undertaken by the Heath Government in 1972 and 1973 had been accompanied by monetary expansion. Second, as Brunner and Meltzer (1977, p. 149) would subsequently acknowledge, real interest rates had *declined* during the U.K. inflation of the early and mid-1970s. This contrasted with standard accounts of crowding-out, which rested on fiscal deficits pushing up real interest rates. Later, Brunner (1986) reemphasized the limited effects of fiscal policy on aggregate demand, including in the United Kingdom, but seemed inclined to believe in the importance of mechanisms *other than* traditional crowding-out that might limit the expansionary effects (for given monetary policy) of fiscal deficits. He particularly stressed Ricardian equivalence—which he had earlier cited as a theoretical possibility in Brunner (1970, p. 4) and Brunner and Meltzer (1973, pp. 48−49).

The Brunner-Meltzer (1973) paper had been presented at the aforementioned July 1972 conference at Oxford University. This was held in honor of Sir John Hicks, and the Brunner-Meltzer article concerned itself with challenging and generalizing the IS-LM framework pioneered by Hicks (1937). In keeping with the monetarist position that they and others had articulated during the 1960s, Brunner and Meltzer argued that the IS-LM's framework was too restrictive in its specification of the asset structure. As the IS-LM framework featured only one interest rate in the IS equation, Brunner and Meltzer contended that one must interpret this framework as implying either that there was only one nonmonetary asset (that is, one security) or that all the nonmonetary assets could be aggregated into a single asset, with a corresponding single (real) interest rate in the IS equation.[28] They argued that, for macroeconomic analysis, such consolidation of assets into a single representative security sacrificed too much information about the effects of monetary policy. For Brunner and Meltzer, a minimum of two nonmonetary assets was appropriate in a structural model. The reason for this insistence was that they believed that monetary injections had appreciable effects both on a baseline interest rate (such as the short-term interest rate the U.K. authorities managed) and on the spreads or risk premiums that connected that interest rate to other asset prices that mattered for aggregate demand.[29]

The issue of going beyond the standard IS-LM framework in order to capture multiple channels of monetary policy would become very important in U.K. policymaking in the twenty-first century. As discussed in Section 5, in this period Brunner and Meltzer's work received new recognition. The monetarist critique of the IS-LM version of the transmission mechanism—a critique to which Brunner and Meltzer's (1973) paper was a leading contribution—proved highly important in informing U.K. monetary policy during the twenty-first century (see Section 5 below). In contrast, the critique was not central to the U.K. debate on monetarism in the 1970s.[30]

That critique was, however, indirectly important in the 1970s U.K. debate because it affirmed approaches that pointed to the significance of monetary policy for aggregate demand. In addition, this perspective on the transmission mechanism, notwithstanding its attention to asset prices, pointed toward emphasis on monetary growth as a measure of monetary policy stance. Brunner and Meltzer argued that, although asset prices and not money appeared in the economy's true IS equation, monetary growth could likely summarize the behavior of the key asset prices better than a single interest rate could.

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[28] Multiple assets could be included in such a framework, but asset yields would be linked to the baseline interest rate except for constant or exogenous term and risk premiums (see Brunner, 1989, pp. 209–210).

[29] As they put it a previous occasion (Brunner and Meltzer, 1972b, p. 63), in a model with two nonmonetary assets, "the 'asset price effect' [the effect on the second nonmonetary asset's price] of a change in the base augments the 'interest rate effect' [the effect on the yield on the baseline security in the model]," and it was not appropriate to summarize these two yield responses by the behavior (or the expected path) of only the baseline interest rate.

[30] The monetarist view of the transmission mechanism, including the Brunner-Meltzer contributions to it, is analyzed in Nelson (2003, 2004; 2018a, Chapters 5–6 and 13–14; 2018b). Bordo and Schwartz (2004) and Ireland (2017) have provided other retrospectives on the Brunner-Meltzer contributions on the transmission mechanism.

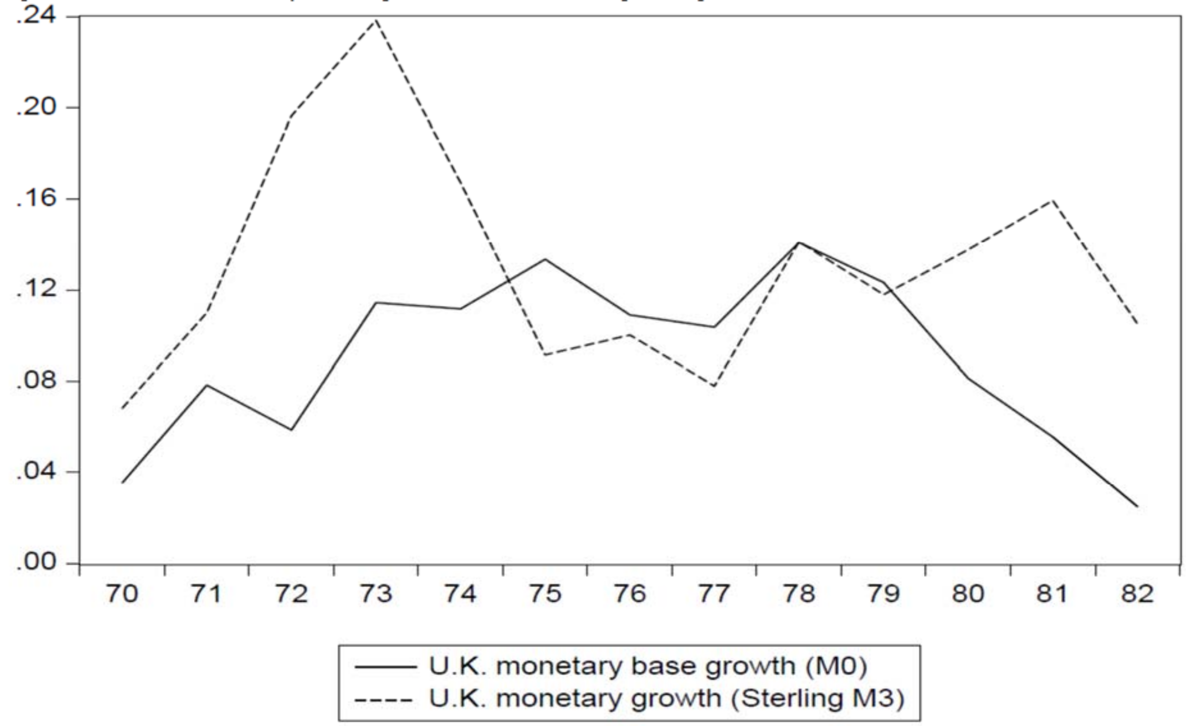
Monetary growth in the early 1970s

It was therefore monetary growth to which Brunner drew attention when examining U.K. developments in the first half of the 1970s. Monetary growth, as measured by M3, was extremely rapid in 1971−1973, leading Brunner (1974b, p. 195) to refer to the "almost horrendous acceleration of the money stock" in the United Kingdom. Aside from the high monetary growth of this period, another notable feature—shown in Figure 4—is that monetary base growth and (Sterling) M3 growth parted ways after their close relationship in the 1960s, with broad money growth being much higher than growth in the base. Part of the strength in the M3 aggregate reflected rapid growth in wholesale deposits, whose behavior was likely not closely related to monetary base growth. However, an M2-type series—not available for the United Kingdom for this period—that excluded wholesale deposits would likely also show very rapid growth during these years and a more rapid rate of increase than base growth. Consequently, for a variety of broad measures of money, much of the rise in monetary growth in the early 1970s reflected increases in the money multiplier. This partly reflected a deep cut in reserve requirements made by the authorities in late 1971. But the continued strength of monetary growth into 1973 reflected further increases in the multiplier.

On this matter, Brunner (1974b, p. 200) suggested that the complicated reserve-requirement system imposed after the CCC reform of 1971 had contributed to the instability of the monetary base/money stock relationship in the United Kingdom during 1972 and 1973. He consequently lamented the "growing complexity of reserve arrangements introduced recently in Great Britain." Although CCC abolished controls on bank lending (and on that score had Brunner's approval), there remained a considerable apparatus of quantitative controls, and by the end of 1973 the authorities were imposing four different types of reserve requirement on commercial banks. Of these reserve-requirement schemes, three of them likely did not do a great deal to loosen the monetary base/money stock relationship over 1972 and 1973.[31] However, the fourth—the special supplementary deposits scheme, or "corset," introduced in late 1973—considerably distorted the relationship between Sterling M3 and other variables (monetary and economic) from 1974 to1980. The corset was a marginal reserve requirement that aimed at limiting growth in banks'

[31] However, the variable reserve requirement was raised multiple times during 1972 and 1973 (Temperton, 1991, p. 187). In so increasing reserve requirements, the authorities probably viewed themselves as tightening policy. Such a view was likely largely misguided. This variable reserve requirement consisted of calls for "Special Deposits." The Bank of England typically offset the effect of changes in Special Deposits on market interest rates—a practice that implied that variations in the Special Deposits requirement had little in the way of implications for monetary growth or aggregate economic behavior. Special Deposits were not included in either the Capie-Webber (1985) or the Bank of England series on the monetary base and so do not directly affect the series on monetary base growth used in this paper.

Figure 4. U.K. monetary base growth and Sterling M3 growth, 1970−1982



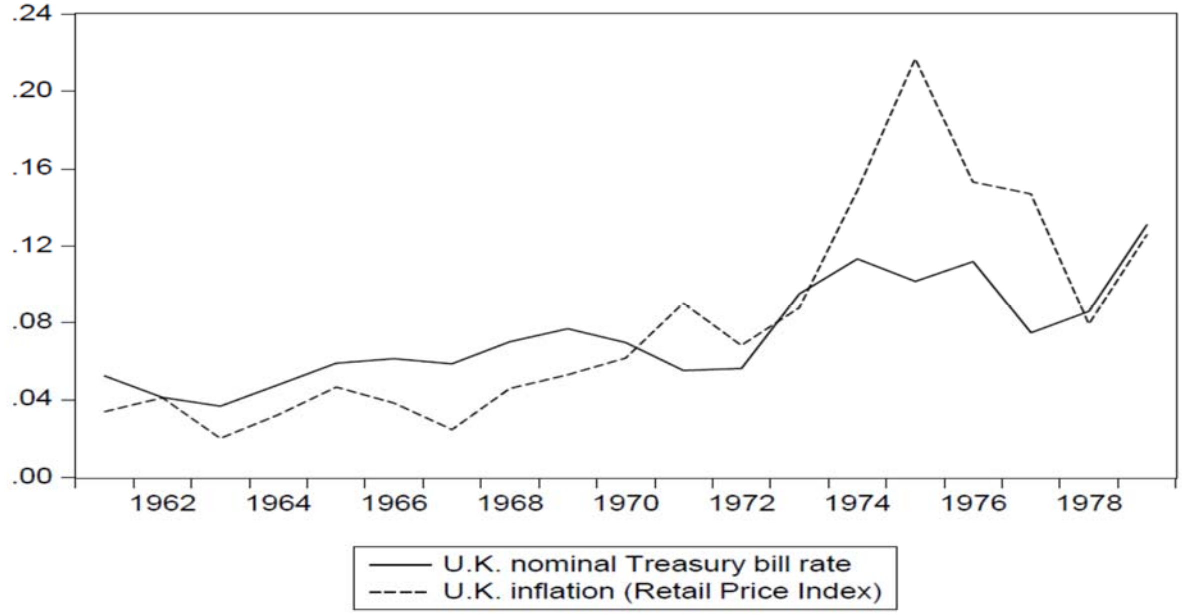
Note: For monetary base growth, see the note to Figure 3. For 1970−1976, Sterling M3 growth is the log-difference in the annual average of den Butter and Fase's (1981) quarterly series. This was used instead of the Capie-Webber (1985) data on Sterling M3 for this period, as the Capie-Webber series appeared to contain large breaks. For 1977−1982, Sterling M3 growth is the log-difference of annual averages of Capie and Webber's (1985) quarterly Sterling M3 series.

interest-bearing deposit liabilities. Over time, its presence likely encouraged the growth of deposit-like instruments not in M3. Partly as a consequence, Sterling M3 growth was a very good indicator of future inflation behavior through the mid-1970s but a poorer one thereafter.

The presence of the corset also made the authorities believe they needed to do less in the way of other measures to restrain monetary growth, such as actions that would have lowered monetary base growth. Indeed, notwithstanding the variations in the multiplier in the 1970s, there is good reason to believe that excessive broad money growth could have been avoided by a policy that implied greater restraint in base money growth. Instead, the actual behavior of base growth in the 1970s was of a kind that accommodated fiscal deficits (see Figure 3 above) and that made nominal interest rates decline in relation to inflation (see Figure 5).

After a period of abatement in late 1971 early 1972, U.K. inflation rose again, with its twelve-month rate in August 1972 standing at about 6½ percent. The following month, Brunner participated in a conference in Wisconsin that was also attended by Leslie Dicks-Mireaux of the

Figure 5. Inflation and nominal interest rates in the United Kingdom, 1961−1979



Note: The U.K. nominal Treasury bill rate is defined as the annual average of the monthly data on the U.K. Treasury bill rate given in the Federal Reserve Bank of St. Louis' FRED portal. The U.K. inflation rate is as defined as the log-change in the annual average of the United Kingdom's monthly Retail Price Index in FRED. The interest rate is directly in annual percentages but, in the figure, is divided by 100 to provide rough comparability of its units with the inflation series. Nevertheless, as the inflation series is a log-change in prices—and hence is only an approximation of the actual percentage inflation rate—the figure notably understates the excess of inflation over nominal interest rates during the years of double-digit inflation.

Bank of England. Dicks-Mireaux was reported as saying in the conference discussion that "the source of the present rate of cost inflation remains a mystery. Despite considerable variation in monetary policy, inflation appears to be self-generating."[32] At a conference in Virginia the following month, Brunner reported that he had heard similar cost-push diagnoses from various central bank officials in continental Europe regarding inflation in their own countries. He complained: "Our diagnosis of the inflation problem is to a large extent rejected still by most treasuries and central banks around the world."[33] Consistent with this characterization, the Heath Government imposed compulsory wage/price controls in the United Kingdom in November 1972. Writing the following year, Brunner (1973, p. 114) expressed exasperation at the apparent "ignorance on the part of government policymakers" regarding inflation's causes, as manifested in their regular recourse to incomes policy.

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[32] In Aliber (1974, p. 312).
[33] Quoted in Selden (1975, p. 303).

Perseverance of nonmonetary approaches to controlling inflation

On July 17–19, 1974, Brunner attended a conference at the University of Manchester on inflation in open economies. The University of Manchester had become a center of activity for monetarist academic work in the United Kingdom, thanks to the presence at the university of such economists as David Laidler, Michael Parkin, and Richard Harrington.[34] Although conference participants gave different perspectives on the extent to which an economy's openness and its choice of exchange-rate arrangement modified the analysis of inflation, the conference proceedings reflected broad agreement that inflation was traceable to monetary forces.

The contrast between this consensus and that prevailing in U.K. official circles came into sharp relief a few days after the conference. On July 22, 1974, Chancellor of the Exchequer Denis Healey delivered a mini-Budget whose centerpiece—offered as an anti-inflation move—was a sharp reduction in indirect taxes. Cuts in indirect taxes had previously been tried as an anti-inflation measure early in the term of office of the Heath Government. The new Wilson Government, in which Healey served, also shared with the Heath Government a stress on incomes policy as a device for fighting inflation. In particular, the Wilson Government, as well as the Callaghan Government (1976–1979) that succeeded it, had a "Social Contract" agreement with the U.K. labor union movement, designed to limit wage increases and inflation. It was in light of this record that Brunner, writing near the end of the 1970s, listed indirect-tax cuts and "social contracts" as among the "battery of irrelevant policies" taken against inflation in various countries in recent years (Brunner, 1980a, p. 98).

Inflation in the United Kingdom, which had crossed 10 percent on a 12-month basis in late 1973 and passed 20 percent in early 1975, was over 25 percent for several months during 1975. The Wilson Government's renegotiated the Social Contract in mid-1975 with an announced aim of bringing inflation down to 10 percent by the end of 1976. When this did not occur, policymakers cited the depreciation of sterling as the factor that had kept U.K. inflation well above 10 percent. This diagnosis contrasted with Brunner's observation in his University of Manchester conference

[34] Brunner (1983, p. 46) credited "the Manchester group of economists" with much of the key "detailed empirical work" on the U.K. economy from a monetarist perspective. He and Meltzer commissioned some of this work for the Carnegie-Rochester conference series. In particular, Parkin, Sumner, and Ward (1976), presented at the November 1973 conference, clearly helped shape Brunner's belief in the usefulness of a long-run vertical Phillips-curve specification (one that included a rising estimated natural rate of unemployment) for the description of U.K. real and nominal behavior. However, even prior to the appearance of this paper, Brunner was, as already indicated, strongly inclined toward an explanation of this sort. Indeed, Parkin, Sumner, and Ward (1976) considered data only through 1971, while Brunner (1971a) had already affirmed his belief that the expectational Phillips-curve story accounted well for U.K. experience over that sample period.

paper that floating exchange rates did not "add in any way" to a persistent inflation problem (Brunner, 1976c, p. 26). Brunner (1978, p. 394) was consequently scornful of recent years' attempts to attribute U.K. inflation to the fall in the exchange value of the pound sterling.

The attitude toward inflation control and analysis in the United Kingdom persevered despite changing views elsewhere. In September 1974, Brunner and his colleagues on the Shadow Open Market Committee pointed to Germany, Switzerland, and the Netherlands as countries acting to reduce monetary growth (Shadow Open Market Committee, 1974, p. 2). Six months later, *Business Week* (March 3, 1975) reported: "Recently returned from a tour of European capitals, University of Rochester economist Karl Brunner comments: 'I have never seen so much agreement among central bankers on the need to orient monetary growth around bringing the inflation rate down.'" But the United Kingdom was something of a holdout on this score. Although official targets for monetary growth (initially for M3, then for Sterling M3) began in 1976, there was far greater acceptance in U.K. officialdom of a link between monetary growth and nominal income growth than there was of a belief that monetary control was sufficient for inflation control. Inflation continued to be seen as cost-push in nature and, against that background, the U.K. authorities saw it as feasible and appropriate for monetary growth to be lowered while real growth was sped up. Incomes policy continued to be seen as central for reducing inflation, and the Social Contract received much of the kudos when inflation did belatedly come down to 10 percent in early 1978.[35]

Developments in the late 1970s

The U.K. economy had been in recession in 1975, but the authorities over the rest of the decade seemed unwilling to countenance a new period of falling real aggregate demand, in part because they (erroneously) believed that the output gap was deeply negative. Brunner, in contrast, observed in an interview in the U.K. press in mid-1978 that a refusal to countenance temporarily lower levels of output and employment amounted to a posture that "rules out any meaningful anti-inflationary campaign" (*The Banker*, July 1978, p. 22).

In one important area of aggregate demand policy, the authorities did make major strides, as the late Wilson period and Callaghan's time in office saw a major fiscal consolidation centered on reductions in public spending and budget deficits. Brunner had stressed that fiscal policy needed

[35] When this occurred, the degree to which the country had become accustomed to rates exceeding 10 percent was reflected in the triumphant headline: "10%—We've Licked It!" (*Daily Mirror*, February 8, 1978).

to be consolidated for sustainable monetary restraint. His Manchester conference paper had maintained that "fiscal control is a necessary condition in the longer run for an adequate monetary growth designed to curb inflation" (Brunner, 1976c, p. 26).[36] Monetary base growth did fall from its mid-1970s peaks during the early period of the fiscal tightening (see Figure 3). However, in contrast to Brunner's injunction that a monetary tightening entailed temporarily higher nominal interest rates (*The Banker*, July 1978, p. 22), the authorities cut short-term interest rates substantially during 1977, resulting in a level for the policy rate that Goodhart (1989, p. 300) would call "ridiculously low" for the economic climate. Correspondingly, monetary base growth picked up.[37] These outcomes for interest rates and the monetary base took place in the context of broad money targeting. In part, this was possible because the authorities relied heavily on the corset device to hold down Sterling M3 growth. However, even the Sterling M3 growth target was overshot in the year to March 1978 (Temperton, 1991, p. 7).

For the November 1977 Carnegie-Rochester conference, Brunner and Meltzer commissioned two papers on the United Kingdom's macroeconomic performance over the decade so far. As a consequence of the inclusion of these papers on the program, the conference proceedings featured what Brunner and Meltzer (1978, p. 2) called "a lively discussion" of U.K. economic policy. But Brunner and Meltzer refrained from organizing the conference program along lines that produced a direct duel between monetarist and U.K. Keynesian accounts of the U.K. experience.[38] Instead, both the commissioned papers were from Cambridge University-based authors. One, by Fetherston and Godley (1978) expounded "New Cambridge macroeconomics" but essentially endorsed the traditional Cambridge Keynesian tradition (followed by Kaldor's generation) of treating U.K. inflation as cost-push in character.[39]

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[36] As already indicated, Brunner also saw a reduction in the size of the U.K. public sector as desirable on grounds beyond monetary-control considerations. He had likened the rapidly growing public sector during the Heath years to an "uncontrollable monster" (Brunner, 1976d, p. 81), and Brunner and Meltzer (1978, p. 1) associated the "British disease" with the rise in government spending as a share of income, and the associated reduced reliance on market mechanisms, that had occurred up to the mid-1970s. Brunner had also published in *the Journal of Monetary Economics* a study by Jonson (1977) that suggested that the expansion of the U.K. public sector in the 1970s helped produce adverse macroeconomic outcomes.

[37] Subsequently, from November 1977 through February 1979, the Callaghan Government raised the policy rate (labeled "Minimum Lending Rate" at the time) by a total of 700 percentage points (see http://www.bankofengland.co.uk/boeapps/iadb/repo.asp). This led to a period in late 1978 and early 1979 when the U.K. nominal short-term interest rate exceeded the inflation rate. However, late in Callaghan's period in office the policy rate went into reverse, with 100-basis point reductions enacted in both March 1979 and April 1979.

[38] Hall's (1978) discussion of the conference papers did give voice to a number of criticisms of U.K. Keynesianism that monetarists had made.

[39] In addition, Brunner (1976a, p. 24; p. 56 of 1978 reprint) complained that New Cambridge Keynesianism, like earlier Keynesianism in the United Kingdom, was dismissive of the importance of monetary policy for aggregate demand behavior. The same article criticized two retired Keynesians from Oxford University—Sir John Hicks and Sir Roy Harrod—for continuing to insist that U.K. inflation was nonmonetary in nature (1976a, p. 46; p. 78 of 1978 reprint).

In contrast, the analysis in the companion conference paper, by Posner (1978), reflected a greater incorporation of the monetarist critique of Keynesianism. Posner acknowledged that monetary expansion had played a more important role in shaping outcomes for U.K. inflation and nominal wage growth than he had once believed, and he indicated that he now regretted the support he had given for "fiscal and monetary policy as practiced by the government of Mr. Heath" (Posner, 1978, p. 5). Notwithstanding these concessions, Posner established some distance between his own position and the monetarist view. In particular, Posner saw neither monetary policy as a sufficient weapon against inflation nor the long-run Phillips curve as vertical. He believed that monetary restriction could reduce inflation, but he relayed a conviction that incomes-policy measures could also reduce inflation—and indeed that they amounted to a preferable instrument, because monetary restriction implied permanently high unemployment.[40]

4. Brunner and U.K. monetary debate, 1979–1989

In the consideration of Karl Brunner's role in U.K. monetary debate, the month of May 1979 is a watershed, for two reasons. First, it marks the beginning of Brunner's final decade of activity in monetary debate, as he died in May 1989. Second, Margaret Thatcher's Conservative party won the U.K. general election of May 1979, and the new government took a monetarist perspective toward the analysis of inflation.

The stake that Brunner and Meltzer had in the fate of monetarist policies in the United Kingdom was underscored a few days after Thatcher took office, when Allan Meltzer testified before a Congressional committee alongside Nobel economist Wassily Leontief. Although not primarily a macroeconomist, Leontief was strongly opposed to monetarism, and during the Congressional hearing of May 9, 1979, he remarked: "I would suggest that before following Professor Meltzer's advice, we should see what will be the results of Mrs. Thatcher's radical policies in England." Meltzer responded sharply: "We don't have to wait for Mrs. Thatcher. We do have some experience in the first 155 years in this country."[41]

Nevertheless, Meltzer came to accept that Thatcher's tenure would be regarded as providing important evidence on monetarism. This acknowledgment was reflected in the title of an

[40] Posner thus seemed to have moved from belief in a pure cost-push vision of inflation to one in which cost-push forces and demand-pull forces were both sources of ongoing inflation, and in which an economy that did not have an incomes policy faced a permanently downward-sloping Phillips curve. By the late 1970s, Nicholas Kaldor showed signs of having made a similar shift in his own thinking (see his House of Lords speech of December 5, 1979, as reprinted in Kaldor, 1983, p. 44).
[41] From Joint Economic Committee (1979, p. 150).

assessment Meltzer wrote of Thatcher's first two years in office: "Tests of Inflation Theories from the British Laboratory."[42] Brunner (1981c) himself observed: "Over the past decade the financial policies pursued in the United Kingdom produced a remarkable record of high and erratic inflation. The government formed in 1979 under Prime Minister Thatcher offered some promise for a basic change in course."

During Thatcher's first year in office, Brunner and Meltzer continued to be simply interested onlookers as far as U.K. economic policy was concerned. They oversaw a Carnegie-Rochester conference in November 1979 that included a contribution, by Sumner (1980), on the international experience to date on monetary targeting. In introductory comments on Sumner's paper, Brunner and Meltzer (1980, p. 5) observed that the experience to date "is not encouraging." In this connection, they specifically pointed to the high monetary growth (and major overshoot of the announced target for monetary growth) that the United Kingdom had experienced in the 1977/1978 financial year.

Monetary growth (both as measured by monetary base growth and growth in the targeted Sterling M3 aggregate) did come down somewhat in 1978/1979, and in the financial year ending in March 1980 Sterling M3 growth came inside the target range that the Thatcher Government had set for that year (Temperton, 1991, p. 7). In mid-1980, however, Sterling M3 growth started dramatically exceeding its target range for the 1980/1981 year. It was at this point that Karl Brunner, stepped directly into U.K. policy discussions.

4.1 Brunner's engagement in U.K. economic policy, 1980–1982

Brunner (1981c) would observe: "It is well known that the Prime Minister became personally very much concerned during the summer of 1980 about the crucial aspects of monetary policymaking." Her concern partly consisted of uncertainty about whether the U.K. authorities were actually achieving the tight monetary policy stance that they had intended to secure. Short-term nominal interest rates had been raised since Thatcher took office, and the economy had entered a deep recession. But during 1980 inflation had moved above 20 percent again, and Sterling M3 growth had stepped up sharply. It was eminently possible that the inflation readings were consistent with tight monetary policy. Instead of reflecting current demand conditions,

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[42] Meltzer circulated in U.S. academia a February 1981 manuscript on U.K. economy under Thatcher (see Sargent, 1981, p. 43). He published a revised version of the manuscript in the July issue of *The Banker* (Meltzer, 1981) and also included it in his submitted materials when he testified on U.K. economic policy to a U.S. Congressional committee in October 1981.

high inflation in 1980 likely reflected aftereffects of the monetary ease in 1977–1978, as well as the Thatcher Government's sharp increase in value added tax in 1979. However, it was less clear that the rapid growth in Sterling M3 being recorded in mid-1980 was reconcilable with tight money. True, the corset had just been removed, and its abolition was artificially bolstering broad money growth. But U.K. officialdom remained worried that underlying monetary growth might well be high and that this signified that monetary policy was loose, contrary to the authorities' intentions.

Against this background, Brunner was introduced to Thatcher at a lunch in Lake Zug, Switzerland, on August 20, 1980 (Brunner, 1980a; Moore, 2013, p. 504). Brunner attributed the overshoot of the Sterling M3 target to the authorities' use of short-term interest rates as their policy instrument instead of the monetary base (Keegan, 1985, p. 153). Brunner advised Thatcher to center monetary policy operations on a monetary base control (MBC) system—a change that had already been urged by several U.K. monetarists.

Brunner and the MBC debate

The MBC proposal amounted to a call for a sharp break with existing practice. As had been the case until October 1979 with the Federal Reserve, monetary targeting in the United Kingdom in 1980 (and in earlier years) involved the authorities setting a short-term interest rate. In principle, this policy rate was set at the value thought to generate, over time, a (nominal) quantity of money demanded that was consistent with the monetary target. Brunner believed that this approach to monetary targeting was flawed because there was too much uncertainty regarding what was the appropriate setting of the interest rate. He agreed that it was the case that, at any time, some value of the short-term interest rate would be most consistent with the target for monetary growth. But, he stressed, no one knew what that value was.[43]

Beyond their actions on the policy rate, however, the U.K. authorities believed they had an additional, supply-side means of influencing the money stock and achieving the target for Sterling M3 growth. Their thinking here was based on the "credit counterparts" approach to money supply determination. According to this approach, commercial banks' deposit creation could be sourced (via an identity) to the corresponding growth in banks' assets. This asset growth, it was believed, could be influenced not only by interest-rate policy but also by the

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[43] See, for example, Brunner's remarks in his submission (of December 4, 1979) in Committee on Banking, Finance, and Urban Affairs, House of Representatives (1980, p. 114). See also his application of this argument to the United Kingdom in *Wall Street Journal*, April 7, 1981.

amount of government debt sold to the banks.[44] The conclusion that flowed from this line of reasoning was that, for a given setting of the short-term interest rate, the Bank of England could reliably affect monetary growth using (sterilized) debt management operations. It was this conclusion that underlay the authorities' much-criticized opening statement in March 1980, in an official public document on monetary control—the Green Paper by the Bank of England and the Treasury (1980). This statement (p. 1, paragraph 1.1) named "fiscal policy [and] debt management" as the first two items of the "instruments available to the authorities in influencing monetary conditions."

Brunner (1983b, p. 105) derided this approach to monetary control. The credit-counterparts equation on which the Green Paper had relied, Brunner said, was a "statement [that] is by itself quite empty." This was so because the equation was an identity and could only be a fragment of a "coherent formulation" of the money supply process. Such a formulation would require a model with behavioral equations alongside the identities (as in Brunner and Meltzer's analysis, which had applied the base/multiplier framework to the U.S. system). What is more, the policy conclusions that the U.K. authorities drew from the credit-counterparts identity included the fallacy criticized by Brunner and Crouch (1967): the view that marketing X units of government borrowing as longer-term debt instead of short-term debt would make the money stock X units lower than otherwise. That this was a fallacy was a criticism reiterated by Darby and Lothian (1983, pp. 159−160) when they analyzed the credit counterparts approach in a paper commissioned by Brunner and Meltzer for the Carnegie-Rochester Conference of April 1982.

The right approach to controlling money, Brunner believed, indeed resided on the supply side of the money market—but it was to be found in MBC, not in the counterparts approach. He and Meltzer therefore pushed for MBC when they visited the United Kingdom in September-October 1980. Their engagements—which they attended along with several other overseas monetary experts—included, on the morning of September 30, a forum on MBC (comprising primarily a dialogue with Bank of England senior staff) and a meeting that afternoon with Thatcher at 10 Downing Street on September 30 (Prime Minister's Office, 1980). The fact of the latter meeting was the first item reported that day on the news broadcasts of both BBC channels Radio 1 and Radio 2 (Gowland, 1982, p. 1). Brunner's days of not being counted by U.K. commentators as a leading monetarist were over.

[44] The credit counterparts approach is considered in detail by Batini and Nelson (2005, pp. 29−32), in an analysis tracing the approach to M.W. Holtrop of the Netherlands Bank.

There were, however, abundant indications that Brunner's interventions in the debate were not being universally welcomed. A hint of this came in the title of the official memorandum recording the Brunner/Thatcher meeting, in which Brunner's delegation was referred to "foreign experts" rather than overseas or international experts (Prime Minister's Office, 1980). The fact that Brunner had, starting with their August meeting in Switzerland, established a direct dialogue with Thatcher was also a cause for concern: the day after the September 30 meeting, a memorandum by the Bank of England's Deputy Governor referred to "Brunner and Co." as "her [Thatcher's] foreign advisers" and as "the foreign monetarists" (McMahon, 1980). Thatcher's practice of receiving back-channel advice, in addition to that from officials in her government or party, was of long standing. But it was specifically Brunner who was being alluded to when, years later, Thatcher's former subordinate Christopher Patten commented that Thatcher's aides were concerned about her tendency for meeting with her official staff about an issue and then separately "seeing a crazed Swiss professor" for advice on the same issue (Moore, 2013, p. 342).

Brunner and Meltzer themselves sensed the doubts held by some of their interlocutors about their participation in U.K. debate. Meltzer would recall that he and Brunner faced great skepticism when making the case for MBC to U.K. monetary experts. Brunner's (1980b) letter to Thatcher after his visit, written in October, stressed the positive aspects of the Bank of England event. But Brunner subsequently suggested that the officials opposing MBC had been unwilling to engage sufficiently in a dialogue. Writing in late December 1980, Brunner (1981d, p. 19) declared the Bank of England to be "a powerful institution with little public accountability." This lack of accountability was reflected, he suggested, in an inadequate response to monetarist critics such as himself: "The Bank of England hid behind its screen against any academic critique… The events of 1980 offer a remarkable example in this respect."[45]

Had they been pressed to respond to such criticisms, Bank officials could have legitimately pointed out that they had had interaction with numerous U.K. monetarists for many years, including on the matter of monetary control.[46] And, as for responding to published critiques, the Bank had actually had little occasion to reply to Brunner because, as of late 1980, Brunner had written no recent article *specifically* concerned with U.K. monetary matters. In particular, Brunner had offered no detailed public reply to the Bank's own on-the-record critique of monetary base control: Foot, Goodhart, and Hotson (1979), which the Bank had published in the *Bank of England Quarterly Bulletin*.

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[45] Brunner (1981d, pp. 19–20).
[46] On this interaction, see, for example, the discussion in McMahon (1980).

As was clear in that 1979 article and in the Green Paper, monetary specialists in U.K. officialdom tended to be strongly opposed to MBC. The primary argument advanced in this opposition was that MBC would lead to less stability in financial markets and the banking system (Foot, Goodhart, and Hotson, 1979, pp. 153−154). This argument stressed that MBC likely implied greater interest-rate variability in the short run and also that a move to an arrangement in which the Bank of England's scope to supply reserves to banks might mean less orderly functioning of the banking system. These costs of MBC, it was suggested, outweighed the benefit offered by MBC's advocates of reduced variation in the growth rate of the targeted monetary aggregate. The concern that an MBC system would generate undesirable financial-market and banking volatility was thus what primarily motivated the position that MBC was not a desirable reform.

A subsidiary argument advanced by MBC's opponents was that MBC would not improve control of monetary growth. Foot, Goodhart, and Hotson (1979, p. 152) accepted the validity of the money multiplier mechanism. And they did not claim categorically that no version of MBC could secure improved policymaker short-run control of monetary growth. They did, however, raise doubt that MBC would actually lead to improved monetary control. This doubt, which centered on the possibility of severe instability in the reserve/deposit ratio, was also voiced by Bank officials internally in 1980 in response to the MBC idea (Keegan, 1985, p. 154), and Fischer (1987, pp. 11, 18) took it to be a main element of U.K. officials' position on MBC.[47]

Brunner repudiates M3

Brunner would come to have sympathy with the idea that Sterling M3 specifically could not be reliably targeted using an MBC procedure. But Brunner initially was disposed toward recommending that Sterling M3 be continued as the monetary aggregate to target. His October 1980 letter to Thatcher, after his U.K. visit, said that "M3 or other monetary aggregates could not run away for any length of time from a basic trend set by the monetary base" (Brunner, 1980b). However, the tone at the September 30 Bank of England seminar had been negative regarding M3; a prominent concern was that the aggregate covered too many different classes of deposit (McMahon, 1980). Indeed, at the time of Brunner's October 1980 letter to Thatcher, Allan Meltzer also wrote to the Prime Minister and said that "many measures" of U.K. monetary growth were collapsing—a judgment that implied that he was looking at U.K. M1 and the

[47] At a conference held in May 1986, after he had left the Bank of England, Goodhart (1987a, p. 255) suggested that MBC would increase the volatility of both interest rates and monetary growth.

monetary base rather than M3 (Meltzer, 1980).

Brunner's statement to Thatcher that M3 was controllable was not inconsistent with his traditional preference for narrower aggregates. He had already indicated for the United States that M3-style broad aggregates that included banks' managed liabilities did ultimate respond to actions on the monetary base, even though he did not favor targeting such broad series (Brunner, 1980d, pp. 21–22). But in the closing months of 1980, Brunner likely came to a greater understanding of the differences between M3 and the broad money concept that he and Crouch had studied in the 1960s. In particular, the existence of the large wholesale component of M3, and the related deviation of M3 from narrower aggregates during 1980, likely persuaded Brunner that M3 was not the best monetary aggregate for the analysis of nonfinancial economic activity.[48] On December 12, 1980, Brunner gave a lecture at a seminar on monetary control held at London's City University (which had become one of the major bases of monetarist analysis in the United Kingdom). A report by a Treasury official who attended Brunner's lecture stated (Lomax, 1980, p. 2): "Brunner has become very clear, since we met last, that the inclusion of wholesale money in £M3 makes it 'quite unsuitable' as a target aggregate." Brunner had arrived at the posture that would lead Lawson (1992, p. 449) to recall that "there was no one more contemptuous of 'your M3' than Karl Brunner, the Swiss-American economist of whom Margaret [Thatcher] was such an admirer."

Brunner's negative perspective on M3 was reinforced by developments in early 1981. His September letter to Thatcher had named Alan Walters among the U.K. monetarists whom the Prime Minister could consult. In fact, Thatcher had already arranged for Walters, whom she had known for several years, to be her economic adviser (Walters, 1989). In light of the confusion regarding the stance of monetary policy, as well as the situation of a very high U.K. exchange rate, Walters had helped arrange for Jürg Niehans to write a report.[49] Niehans delivered a preliminary version of the report in early 1981. It was negative about M3, and supportive of the monetary base, as an indication of recent monetary developments. On the basis of the monetary base's behavior, Niehans (1981, p. 26) judged that there had been an "abrupt stop in monetary expansion" under Thatcher and that this tightening was reflected in the recent behavior of output and the exchange rate. The move to monetary stringency that Niehans described was also evident in the behavior of U.K. manufacturing production, as is made clear in Figure 6.

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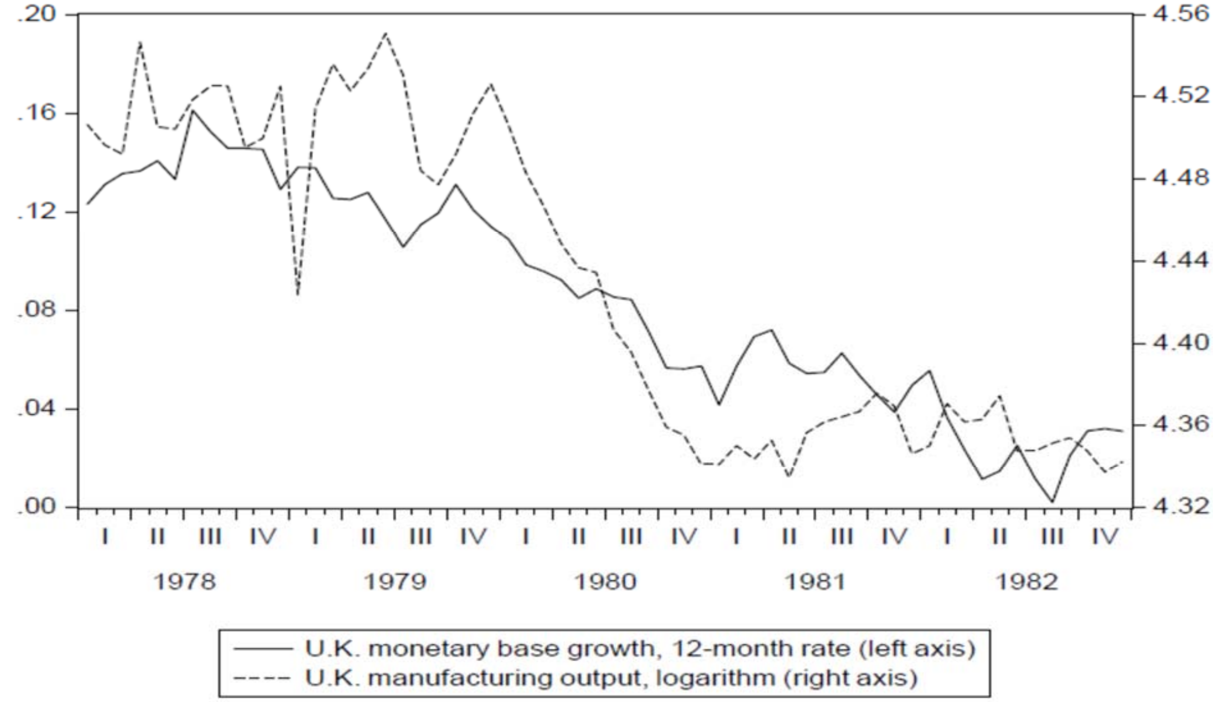
[48] See Nelson (2018a, Chapter 14) for a broader discussion of how monetarists incorporated wholesale deposits into their analysis of monetary aggregates.

[49] Niehans had been at Johns Hopkins University until 1977, being a colleague of Walters; since 1977 he had been at University of Bern, with which Brunner was also affiliated. See American Economic Association (1985, p. 382).

Figure 6. U.K. manufacturing output and annual monetary base growth, monthly, 1978–1982



Note: Monetary base growth is obtained as the 12-month log-difference in the break-adjusted M0 series. Manufacturing output is obtained from the Bank of England's online Millennium of Macroeconomic Data file.

Niehans was also dismissive of Sterling M3 as an indicator of monetary conditions (Niehans, 1981, pp. 22, 57–58). He declared (p. 57) that "£M3 is almost impossible to control by monetary policy." This contrasted with the optimism on M3 controllability that Brunner had expressed as recently as October 1980. But he now agreed with Niehans on the matter, as far as short-run control was concerned.

Brunner's doubts about the controllability of broad money were, however, secondary to his skepticism about the importance of the aggregate. Brunner articulated this skepticism publicly in a long article on U.K. monetary policy in the newspaper *Neue Zürcher Zeitung*. This was an article written in German for a Swiss newspaper. Brunner was, in effect, reproducing the problem he had created for himself with Brunner and Crouch (1967): he was writing about U.K. monetary policy in a publication that very few U.K. economic observers would see.

The article itself (published on February 21, 1981) recounted the squeeze on the monetary base since 1979. Brunner argued that the concurrent rapid expansion of Sterling M3 had been "irrelevant" for nonfinancial economic activity. He expressed concern that the focus on Sterling M3's behavior in policy statements was slowing public recognition of the shift to tight money;

this, he argued, was keeping up inflation expectations and making the recession worse. Brunner suggested that a narrower measure of money might be an appropriate target, but that the targeting procedure should use the base/multiplier analysis and not be based on the credit counterparts.

Alternative targets

In the question-and-answer session for his 1980 City University lecture, Brunner acknowledged that, notwithstanding his enthusiasm for MBC, there was no empirical study establishing the viability of money-multiplier analysis for the United Kingdom.[50] This vacuum was filled before long when David Howard of the Federal Reserve Board produced an analysis of U.K. monetary relations in the 1970s. Howard found that commercial banks' demand function for reserves could be discerned. The results were made tentative by the brevity of Howard's sample period and the number of variables included in the demand function. But the results did suggest that control of U.K. bank deposit creation, and even M3 targeting, might be possible using an MBC system. The study was issued as a working paper in February 1981, and Brunner published it in the *Journal of Monetary Economics* in early 1982 (see Howard, 1982).

By the time Howard produced his study, however, Brunner had acquired grave doubts not only about M3 targeting but also about whether an intermediate target that included bank deposits was the best immediate option for the United Kingdom. He still held out the hope that MBC would eventually be used to target an aggregate broader than the monetary base. But Brunner displayed unhappiness at the apparent absence since 1971 of a close *bivariate* relationship in the United Kingdom between reserve creation and deposit creation in the United Kingdom.[51] In December 1981, he suggested that the very low volume of excess reserves on which the U.K. banking system relied was a symptom of the weaker relationship. This low volume, Brunner conjectured, reflected a too-permissive attitude by the Bank of England toward providing reserves: commercial banks, he said, were able to "run on virtually no reserves" because the Bank's practices provided little incentive for them to maintain an inventory of reserve balances.[52] An MBC system, he implied, would lead to both higher desired excess reserves/deposit ratios on the part of banks and a closer relationship between reserve creation and bank deposit issuance. In contrast, Bank officials concurred that MBC would likely boost the demand for reserves but believed that this development would probably loosen still further the link between the monetary base and wider monetary aggregates (Foot, Goodhart, and Hotson, 1979, p. 154).

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[50] See Lomax (1980, p. 2).
[51] As indicated above, Howard (1982) had found only a close *conditional* relationship.
[52] Brunner, as quoted in Newton (1983, p. 206).

Brunner was also firmly convinced that an eventual MBC system would have to target a broad money series whose definition was narrower than that of M3. In his December 1980 lecture he had spoken favorably about the U.K. authorities targeting M2—that is, currency and retail deposits—and urged that such an aggregate be constructed. The Treasury had already started investigating the creation of an M2 definition (McMahon, 1980) and in early 1981 the Bank of England announced that it would report an M2 series in the future (Brown, 1981, p. 12). However, the Bank did not launch the new M2 aggregate until mid-1982. Furthermore, no historical run of the series was available, and in the early 1980s U.K. M2 was poised to go through a period of difficulty of interpretation as interest rates on retail deposits rates became even more closely related to market rates. There was, consequently, little prospect of M2 being made the targeted monetary aggregate.

Amid these developments, Brunner's urged that the monetary base should itself be the targeted aggregate (as well as the instrument). "From the start, we told her [Thatcher] it was in part a data problem: M1 is too narrow, and M3 is much too broad. We need something between M1 and M3 as a proper measure of the money stock. So long as there is this data problem, the central bank should focus on the monetary base…" (*Wall Street Journal*, April 7, 1981.)

Meltzer speaks out

During 1981, Allan Meltzer was a very active commentator on the Thatcher Government's economic performance. He gave his perspective on the subject multiple times in both the United States and the United Kingdom. By the summer of 1981, Meltzer seemed to have reached a mostly negative assessment of the Thatcher Government's record and was said in the U.K. press to be writing a "devastating analysis" of Thatcher's tenure for the *New York Times*. In the U.K. news report, Meltzer indicated that, while monetary policy had tightened and inflation had come down (being about 11.5 percent by mid-1981), he doubted Thatcher would be able to withstand pressure for a policy U-turn: "She has failed to win control over her Cabinet and the Bank of England." He also found her falling short on microeconomic reform: "She has not sold the council houses or the nationalized industries, and she has raised taxes." Meltzer further implied that his article would offer the hypothesis that these outcomes reflected Thatcher's shortcomings as a leader, especially as compared with U.S. President Ronald Reagan: "I have great respect for Mrs. Thatcher, but she is not a leader in that sense… The essential difference between her and Reagan is that he seems able to implement his philosophy—and she doesn't." (*Liverpool Daily Post*, August 6, 1981.)

It is unlikely that Brunner shared Meltzer's negative perspective regarding Thatcher's resolve. Brunner's more favorable outlook toward Thatcher likely stemmed from activities in which he engaged that were separate from his work with Meltzer. Not only were Brunner's interactions with Thatcher greater than Meltzer's, but he also watched foreign policy and defense developments more closely than Meltzer did, in part by being on the editorial board of the national-security journal *Strategic Review*. By 1981, Thatcher had already met approval from those, like Brunner, favoring a Western military buildup in response to the Soviet Union.[53]

Such behavior in noneconomic areas may have bolstered Brunner's confidence that Thatcher would also not reverse course on domestic macroeconomic policy and might eventually make more progress on the microeconomic and fiscal matters that Meltzer had cited.[54] Perhaps Brunner also influenced Meltzer when Meltzer finalized his *New York Times* piece (August 7, 1981), which was somewhat more positive about Thatcher's record than Meltzer had been in his comments in the U.K. press. And after 1981, the privatization reforms that Meltzer in 1981 cited as absent from Thatcher's achievements became a major part of her economic record.

Brunner's assessment of U.K. monetary policy improves

Brunner took the view that the authorities had been tighter in 1979 and 1980 than they intended to be, owing to their focus on M3 behavior instead of the monetary base. The Niehans report had also reached this conclusion and, because of the implicit criticism that this conclusion represented of the Thatcher Government, Niehans was asked by U.K. officials not to publish his report. Niehans was affronted by this request. Sympathetic with Niehans' reaction, Brunner arranged to distribute the report through his own Center for Research in Government Policy and

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[53] For example, in September 1979 Thatcher's Government agreed to place U.S. intermediate-range nuclear missiles in the United Kingdom. This decision initially met little opposition (see Moore, 2013, p. 559) but became more a subject of national debate after James Callaghan, who supported the deployment, stepped down as Labour party leader and was succeeded by his deputy, Michael Foot. Foot indicated that he hoped that the deployment would not go ahead and that, if it did proceed, the deployment would be rescinded if he became Prime Minister (*Weekend World*, ITN, January 26, 1981). The deployment took place in late 1983, despite the considerable pressure to cancel it. See, for example, Goodfriend and King (2004, p. 44).

[54] In a 1982 Christmas card to Thatcher, Brunner said: "The battle for the survival of free societies continues… This concern makes us appreciate very much the kind of political leadership you offer." (See https://www.margaretthatcher.org/document/122587.) This statement seemingly alluded to both the economic and defense (Cold War) aspects of Thatcher's policies. It therefore supports the argument given in the text. It is, however, beyond the scope of this paper to give a thorough examination of Brunner's interests beyond monetary economics, including foreign affairs and the nature of political institutions. (For Brunner's interest in the latter subject, see his remarks in Section II of Brunner, 1980e, and in Blaug, 1986, p. 126, as well as the analysis of Laidler, 1991, p. 645.) It is worth remembering that, despite this broadening of interests, Brunner in 1985 confirmed that his central research area remained monetary policy (American Economic Association, 1985, p. 124).

Business at the University of Rochester.[55] When Niehans (1981) duly saw the light of day, Brunner included a foreword in which he explained that he had facilitated publication of Niehans' report because it "deserves the attention of a wider public" (Brunner, 1981c).

Despite this defiance of her administration, Brunner's relations with Thatcher were still good, and he met her again in Switzerland on August 19, 1982. A memorandum that Brunner sent Thatcher the following month recorded and elaborated on his August remarks (Brunner, 1982a). The memorandum's content illustrated the increased standing that U.K. monetary policy had achieved with Brunner during 1981 and 1982.

This improved outlook was not because the authorities adopted MBC. On the contrary, by the end of 1981 it was clear that Thatcher had accepted the advice against MBC. Brunner's fellow monetarist Walters had supported rejecting MBC (Walters 1984, pp. 275−276). Walters was worried that the initial stages of MBC—a time during which banks' reserves demand would be adjusting to the new regime—would see financial market instability and a sharp rise in interest rates.[56] Walters (1984) also stressed the important point that the main historical examples of excessive monetary expansion in the United Kingdom had been consciously stimulative policy moves and did not primarily reflect faults in operating procedures. In retrospect, 1980 had not proved an exception to this generalization, as money had been tight in that year, with the rapid rate of Sterling M3 growth giving a false signal.[57]

Nevertheless, monetary policy in the United Kingdom in the second half (1981−1983) of Thatcher's first term found favor with Brunner. An important reason for this was the fact that, while rejecting MBC, the authorities put increased weight on the monetary base in policy discussions. Niehans (1981, p. 24) had constructed a monetary base series from its components, lamenting: "Remarkably, there is no official series on base money." But in March 1981, the Bank of England started reporting data on the base (labeled "M0") along with a historical run on the series. A *Financial Times* report in 1982 suggested that the recent course of M0 "has been

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[55] Brunner's cover letter accompanying Niehans (1981) was dated January 7, 1982. This public version of Niehans' report was therefore released about a year after Niehans composed his first, restricted-circulation, draft. Niehans gave other public versions of his analysis of 1979−1981 U.K. monetary policy in Niehans (1982; 1984, pp. 302−307).

[56] Related to this concern, Thatcher had asked Allan Meltzer at the September 1980 Downing Street meeting whether a switch toward MBC would likely raise interest rates, and Meltzer replied that, initially, it would indeed do so (information from Allan Meltzer, October 2000).

[57] The fact that Niehans had found that monetary growth had not been excessive in 1980 was thought to have helped persuade Thatcher that a move to MBC was unnecessary (*Wall Street Journal*, December 17, 1981).

noted with approval by no less an authority than Professor Karl Brunner, the Swiss-American monetary expert much respected by Mrs. Thatcher" (*Financial Times*, April 30, 1982).

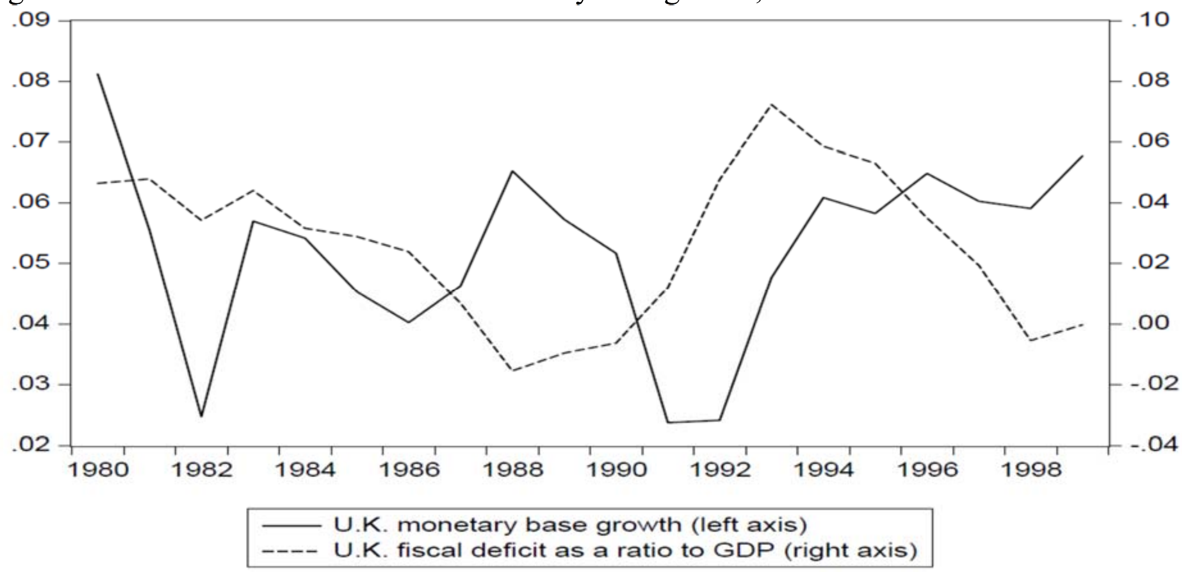
Furthermore, over the course of 1982 M0 received increased attention in the setting of U.K. monetary policy (Walters, 1990, p. 92). Brunner's own belief that M0 merited being treated as the target aggregate in the United Kingdom was reinforced at the April 1982 Carnegie-Rochester Conference, with Darby and Lothian's (1983) contribution reporting creditable historical relationships between U.K. base growth and nominal income growth and inflation.[58] In September 1982, Brunner (1982b, p. 16) reaffirmed publicly: "In the context of unresolved or unattended measurement problems for both M1 and M2 (as in the United Kingdom)[,] monetary policymakers should provisionally target directly the monetary base."

U.K. monetary policy was also showing other signs of now being closer to Brunner's vision than it had been prior to 1979. Monetary policy was conducted in such a way that the monetary base was no longer accommodative of fiscal deficits (see Figure 7) and—in contrast to the 1970s—short-term interest rates in the 1980s (shown in Figure 8) largely stood above inflation rates. Inflation fell into single digits in April 1982, and proceeded to fall below 6 percent at the end of 1982—the lowest rate in over a decade.

As these events unfolded, Brunner's September 1982 note to Thatcher conveyed his enhanced esteem for the U.K. monetary authorities. Brunner and the Bank of England had exchanged public barbs during 1980−1981. Each had accused the other of lacking economic rigor, with Brunner (1981d, p. 18) accusing U.K. central bankers of relying on "mystique" and an "essentially metaphysical approach to monetary affairs and monetary policymaking," while John Fforde, the Bank's executive director, had told the *Wall Street Journal* (December 7, 1981): "Monetarism is a theology, and central banks aren't theological places." In marked contrast, Brunner's (1982a) memorandum was conciliatory: "All the indications available suggest that the Bank of England is strongly committed to pursue an anti-inflationary policy… The apparently determined commitment to an anti-inflationary policy marks in my opinion a [sic] substantial progress in the Bank's views."

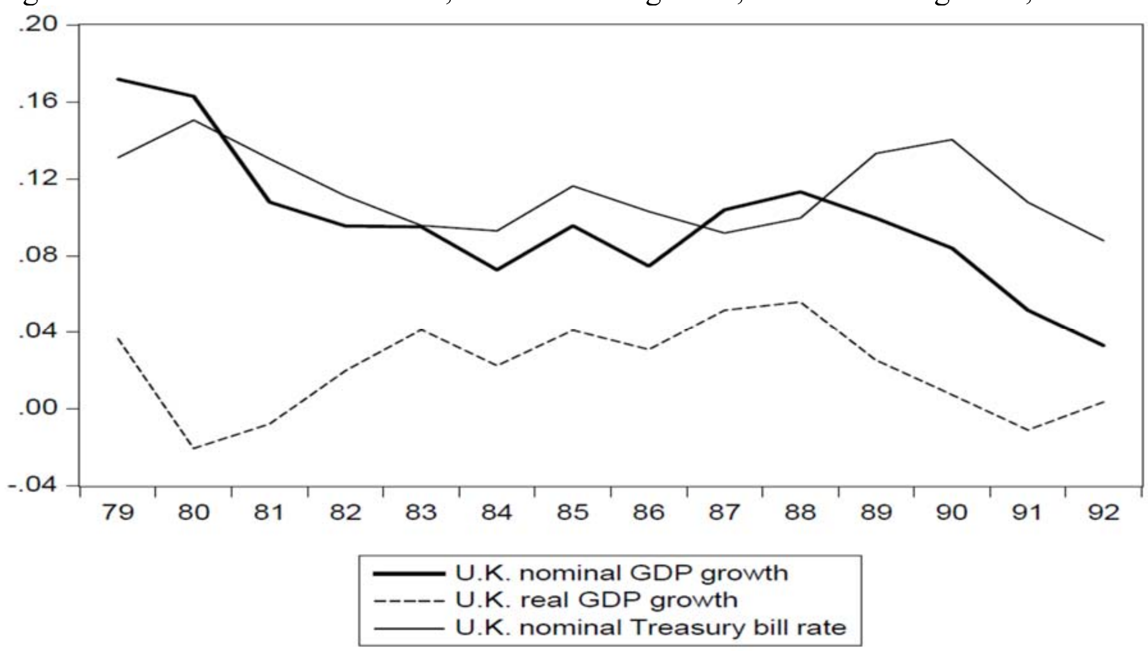
[58] Brunner had earlier expressed confidence in M0 growth's predictive power for U.K. inflation at the September 1980 Bank of England seminar (see McMahon, 1980).

Figure 7. The U.K. fiscal balance and monetary base growth, 1980–1999



Note: See note to Figure 3 for data sources.

Figure 8. U.K nominal interest rate, nominal GDP growth, and real GDP growth, 1979–1992



Note: Real GDP is obtained from FRED's annual U.K. series. The other data are described in the notes to Figures 3 and 5. The growth rates shown are log-differences.

Brunner went on to note "other indications of [favorable] movements in the Bank's thinking and policy conception." He applauded the improvements the Bank had made to U.K. monetary data, including the introduction of an M2 series. He also praised the Bank for "lowering the attention traditionally directed to an essentially unsuitable measure (M3)." However, Brunner felt that still further attention should be concentrated on M0 by the authorities and that in recent months they had pursued too tight a policy, as a result of focusing too much on the exchange rate and too little on stability in growth of the monetary base. While welcoming the Bank's focus on inflation, Brunner expressed concern that the Bank was unduly preoccupied with avoiding short-term fluctuations in inflation that arose from exchange rate variations. It was important, he underlined, for monetary policy actions not to seek to forestall short-run spikes in the price level.

4.2 Brunner and U.K. monetary debate, 1983–1989

Back in the world of research, James Tobin had published an article, "The Monetarist Counter-Revolution Today—An Appraisal," in the March 1981 issue of the *Economic Journal*. The paper—derived from Tobin's contribution to a symposium at a meeting of the Royal Economic Society in London in July 1980—was highly critical both of monetarism and monetary aggregates. In addition, Tobin gave only *pro forma* recognition of Brunner and Meltzer's contribution to the monetarist literature.[59] Brunner was incensed at what he called Tobin' "diatribe" against monetarism and set out to write a rebuttal.[60] Apparently unwilling to contemplate the restrictions on space or content that would be associated with trying to publish his reply to Tobin (1981) in the *Economic Journal*, Brunner published his article-length rebuttal in the Spring 1983 issue of *Cato Journal*, a U.S. public-policy publication.

Brunner's (1983a) article contained very little on U.K. developments but did bear on them indirectly in one major respect. Tobin (1981, p. 33) had noted that monetarism had become associated with free-market economics and argued that the two positions were logically detachable from one another: "a monetarist could favor big and active government" (Tobin, 1981, p. 34). Brunner (1983a, pp. 32–33), in contrast, seemed to see a close connection between monetarism and small-government views. This was a somewhat surprising position, as it has often been observed that the macroeconomic positions of monetarism do not preclude a belief in a large public sector (see, for example, Laidler, 2001). Thus, belief in monetarist positions is indeed largely separable from advocacy of market solutions.

[59] In contrast, Laidler's (1981) paper for the same symposium cited Brunner extensively.
[60] The quotation is from Brunner (1983a, p. 53).

The United Kingdom experience does, provide a qualification to this conclusion, and this qualification was perhaps an important motivation for Brunner's emphasis on the connectedness of adherence to monetarism and belief in market mechanisms. One implication of the monetarist view on inflation was that the compulsory or near-compulsory incomes policies the United Kingdom tried before 1979 would be ineffective against inflation. These incomes policies were, essentially by definition, interventions in the market system. The monetary view of inflation therefore supported market determination of wages and prices. Indeed, a corollary of the definitive 1979 assignment of inflation control to monetary policy was the abandonment of attempts at incomes policy. The significance of this shift was underscored by Bank of England Governor Richardson's testimony in 1982 that the current framework had been preceded by the "frustrations in terms of incomes policies in an attempt to stop inflation."[61]

Brunner met Prime Minister Thatcher again, along with Alan Walters, at 10 Downing Street on April 27, 1983. The meeting apparently mainly concerned the international debt crisis rather than U.K. monetary policy (see Walters, 1983).

The following November, Brunner and Meltzer invited Walters to contribute to the Carnegie-Rochester Conference series on Thatcher's first four years in office. In addition to arguing for the importance of a number of microeconomic and fiscal policy changes that had occurred under Thatcher, Walters (1984) contended that her tenure had seen a durable and sizable decline in inflation. Brunner and Meltzer (1984, p. 6), in commenting on Walters' paper, themselves judged that Thatcher's "greatest success has been the change in monetary policy and the resulting reduction in inflation," while also noting that she had not introduced MBC or an explicit monetary rule. Michael Parkin, whom Brunner and Meltzer assigned to be Walters' discussant, expressed skepticism about whether the fall in inflation would prove lasting. Parkin (1984) argued that no fundamental policy change had been made that would ensure that the reduction achieved in monetary base growth would be maintained. Arguably, the subsequent introduction, in March 1984, of formal targets for M0 growth went in this direction.

By 1987, M0 was the only monetary aggregate targeted by the Thatcher Government. Brunner and Meltzer (1987, p. 2) pointed to a possible virtue of the monetary base: "Demands for currency and for monetary base are affected very little by financial deregulation…" This was a generalization that could not be true of all changes in the regulatory or operational framework.

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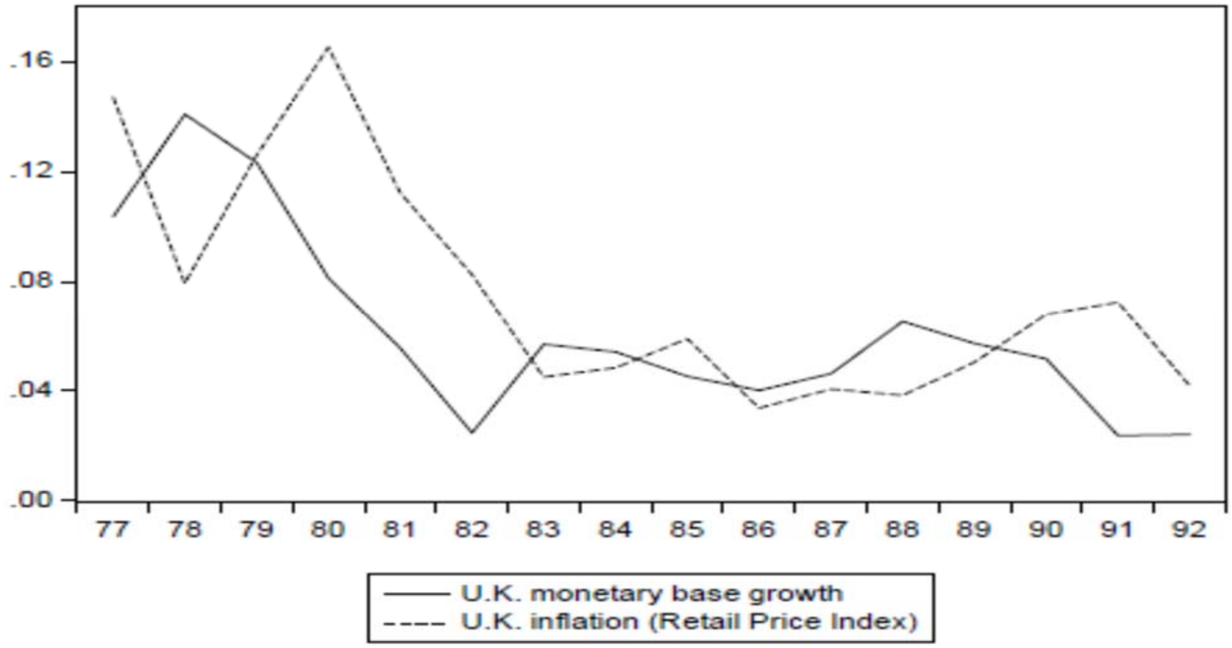
[61] From Richardson's testimony (March 29, 1982) in House of Commons Treasury and Civil Service Select Committee (1982, p. 40).

Indeed, when in 2005−2006 the United Kingdom introduced payment of interest on reserve balances, the Bank of England discontinued the official M0 series, in anticipation of a major shift in the relationship between bank reserves and other variables. However, it was indeed true that the monetary base was largely insulated from the major effects of the financial deregulation and innovation observed in the United Kingdom during the 1980s—such as the abolition of the corset and the spread of interest payments on demand deposits. This situation is highlighted in Figure 9, which shows that monetary base growth had an exceptionally good relationship with future inflation during the Thatcher years (a relationship that continued through the beginning of inflation targeting in 1992).

In 1985, the *New Palgrave* dictionary of economics was in preparation, and the editors were selecting topics and inviting contributors. With the U.K. debate on the matter a recent event, the editors were aware of the division among monetary economists on the merits of MBC. The editors decided to split the difference by commissioning two dictionary entries: one, "The Monetary Base" by Charles Goodhart, that was critical of MBC, and one, "High-Powered Money and the Monetary Base," by Brunner. These entries duly appeared in the published *New Palgrave* dictionary (Goodhart, 1987b; Brunner, 1987a). Brunner's entry was mainly expositional. But there was a hint of his twenty-five years of disagreement with U.K. money supply analysis in his opening declaration that the monetary base "is an important term in any analysis addressing the determinants of a nation's money stock." His other *New Palgrave* entry, "Money Supply" (Brunner, 1987b), engaged in the MBC debate more directly. In this entry, Brunner pointed to statistical evidence for the United States through the end of 1985 to argue for the feasibility of an MBC system directed at control of monetary aggregates. "The degree of control is quite sufficient for all practical purposes of monetary management."

Brunner's "Money Supply" entry also noted that a country's prerogatives for setting the monetary base were circumscribed if it did not float its exchange rate: "a fixed exchange rate system constrains ultimately even a larger country." Another real-world example of this phenomenon was emerging even as the *New Palgrave* entry appeared in print. In 1987 and 1988, an enhanced concern by the U.K. authorities with stabilizing the exchange rate was associated with a pickup in monetary base growth to above its target range. Expansionary monetary conditions were associated with a faster rate of nominal income growth, notwithstanding the Thatcher Government's longstanding undertaking to bring nominal income growth steadily down to rates consistent with long-run price stability. The higher nominal income growth was initially primarily associated with faster real GDP growth—see Figure 8—but decidedly higher inflation rates followed later in the 1980s.

Figure 9. U.K. inflation and monetary base growth, 1979–1992



Note: See notes to Figures 2 and 5 for data sources.

On November 5, 1986, Brunner, now age 70, gave the annual Henry Thornton lecture at City University, London.[62] He revised the lecture, titled "The Disarray in Macroeconomics," in February-March 1987, and the lecture was published in January 1989 in a book collecting the Thornton lectures.[63] Brunner's lecture was largely concerned with recent developments in U.S. macroeconomics, but he included a section (Brunner, 1989, pp. 200–202) on his old sparring partners, "the radical Keynesians"—the advocates of the "Radcliffian" position deprecating the effectiveness of monetary policy. Brunner noted that this position was "usually encountered among English economists" (p. 202). He might have added that these economists were largely of his own generation; few younger economists in the United Kingdom adhered to the Radcliffian position. Indeed, Brunner's lecture was written in a period when several of the figures in the halcyon Keynesian-monetarist debates were fading from the scene. Sir Roy Harrod had died in 1978 and Joan Robinson in 1983. By the time Brunner delivered his lecture, Nicholas Kaldor had also passed away, in September 1986. Richard Sayers died in February 1989, several weeks after Brunner (1989) appeared in print. Sir John Hicks died on May 20, 1989. Brunner himself had died eleven days earlier, on May 9, 1989.

[62] Brunner was a longtime admirer of Henry Thornton. Brunner and Meltzer (1971, p. 784) had called Thornton "one of the best of the early monetary theorists" and Brunner and Meltzer (1980, p. 5) had quoted Thornton to highlight his status as a pioneer in the advocacy of monetary rules.
[63] See Brunner (1987c, 1989).

5. Brunner's imprint on modern monetary analysis in the United Kingdom

Brunner's work has had an afterlife in the United Kingdom in the form of an imprint on the monetary analysis used by the authorities in the era of quantitative easing. In particular, policymakers have drawn upon Brunner and Meltzer's multiple-asset view of the transmission mechanism, which allows for monetary policy actions to be stimulative even when the short-term interest rate has reached its lower bound and even when the policy actions in question do not affect the expected future path of the short-term rate.

The exposition of their multiple-asset model that Brunner and Meltzer gave in their 1973 paper and elsewhere typically concentrated on the distinction between "bonds" and "real capital," rather than between different classes of interest-bearing securities. This may have left the impression that they believed that different types of financial securities—in particular short- and long-term securities—were perfect substitutes for one another. Such an impression would seem to suggest little prospect that, when the short-term interest rate was zero, central bank open market operations (switches of base money for bonds) could themselves provide stimulus, and might imply that effective monetary easing in such circumstances had to involve actions rarely taken by central banks historically, such as purchases of physical assets.

In fact, however, Brunner was confident that monetary policy could affect the economy at the lower bound even if the central bank's purchases were only of government bonds. He did believe that the real asset/nominal asset distinction was important in analyzing monetary transmission. But he also indicated that financial market reactions provided a more satisfactory indication of the transmission of monetary policy, the more a country had well-organized financial markets (Brunner, 1981a, p. 1053). Furthermore, he subscribed to the view that different types of bond were not perfect substitutes for one another and, in particular, that one of the ways in which monetary policy affected longer-term rates was by affecting the term premium, via a portfolio balance effect.[64] It followed that if short-term interest rates had fallen to zero, open market purchases of long-term government debt were available as a means of putting downward pressure on longer-term rates and stimulating economic activity. Brunner and Meltzer (1968, p. 10) had given an indication of this policy option when they noted that purchases of long-term government bonds would lower the bond rate and that this lowering would be transmitted (via arbitrage) to corporate bond rates, even though the initial purchase had not been of corporate bonds. In 1976, Brunner elaborated on this point by stating that, in the

[64] See, for example, Brunner (1983a) as well as the discussion in Nelson (2003).

1930s, the Federal Reserve's scope for providing stimulus via the federal funds market had likely been exhausted, but "all other financial markets" were available—and so those markets could serve for the "transmission of monetary impulses to economic activity and the price level."[65]

It is no exaggeration to say that the quantitative easing policy undertaken by the Bank of England for much of the period since 2009 has been considerably informed by Brunner's monetary writings with Meltzer. Indeed, U.K. policymakers have made this point very clear—on the record, and on multiple occasions.[66]

Interest in the Brunner-Meltzer monetary analysis by the modern Bank of England dated back to the early years following Bank independence in 1997. Mervyn King, the Deputy Governor of the Bank, attended a Bundesbank conference (held on March 26–27, 1999) at which Meltzer presented an exposition of the Brunner-Meltzer transmission mechanism. Here, Meltzer (2001) emphasized the relevance of the multiple-yield transmission mechanism for the understanding of historical episodes, including the United States in the early 1930s. King went on to discuss this view of the transmission process in an address to the August 1999 Jackson Hole conference—citing Meltzer's paper in that context (King, 1999, p. 41).[67]

King was Bank Governor when, in 2009, with the policy rate at its lower bound, the Bank began quantitative easing (QE): purchases of longer-term securities. In outlining the basis for QE, Deputy Governor Charles Bean (2009) invoked Brunner and Meltzer's analysis. "The mechanism whereby asset purchases are supposed to influence the economy are absent in the canonical New Keynesian/New Classical macroeconomic model… The rationale for asset purchases—that relative asset supplies affect asset prices and returns—instead lies in an older strand of the literature, dating back to Tobin (1969) and Brunner and Meltzer (1972[a])."[68]

6. Conclusion

The preceding analysis has considered the relationship between Karl Brunner and U.K. monetary

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[65] Brunner (1976c, p. 26; p. 58 of 1978 reprint).

[66] In addition, researchers in the United Kingdom on monetary policy at the lower bound have pointed to Brunner and Meltzer's writings on the multiple transmission channels of monetary policy. For example, Congdon (2011, p. 417) cited Brunner and Meltzer (1968), while Bridges and Thomas (2012) referenced Brunner and Meltzer (1993).

[67] A few years later, Paul Tucker, a member of the Bank's Monetary Policy Committee, cited Brunner and Meltzer (1993) and spoke favorably of that book's layout of the monetary transmission mechanism (see Tucker, 2003).

[68] More recently, Andrew Haldane (who became the Bank's Chief Economist, and a member of the Monetary Policy Committee, in 2014) cited Brunner and Meltzer (1973) when outlining the transmission channels underlying quantitative easing (see Haldane, Roberts-Sklar, Wiedalek, and Young, 2016, p. 10).

debate over the course of fifty years—from Brunner's hostile reaction to the Radcliffe Report in 1959 to 2009 when, twenty years after Brunner's death, the Bank of England launched a quantitative easing program that was inspired partly by his monetary analysis.

As a leading monetarist, Brunner called in the 1960s and 1970s for U.K. officialdom to change its approach to macroeconomic strategy in several respects. Four of his key recommendations were: give more weight to monetary policy as an influence on aggregate demand; use monetary policy against inflation; abandon nonmonetary measures against inflation; and use monetary aggregates as a target and indicator of monetary policy. By the early 1980s, U.K. policymaking had changed dramatically, in a manner that was in keeping with the first three of these recommendations. However, policymakers' move in the 1970s to targeting of monetary aggregates that included bank deposits proved less lasting and was abandoned in the 1980s. Brunner himself had become disillusioned with the targeting of broad money in the United Kingdom. By mid-1981, he was recommending that the monetary base itself be the targeted aggregate. The authorities' focus, during much of the 1980s, on the monetary base as an indicator or target was in line with Brunner's suggestion. In contrast, Brunner failed to persuade the U.K. authorities to adopt monetary base control, and they never abandoned the short-term interest rate as their key policy instrument.

In the twenty-first century, short-term interest rate policy has been supplemented on a large scale by quantitative easing. In the United Kingdom, this era has seen a fresh spotlight thrown on Brunner's emphasis on the links between the central bank's balance sheet actions and the behavior of asset prices and economic activity.

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