

Mr. Goodhart and the EMU

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Schumpeter (1954) adopted a Metallism versus Chartalism frame to characterize the development of monetary thinking over the broad sweep of history up to his time. Goodhart's paper on "Two Concepts of Money" (1998) adopts the same frame to place the debate about the EMU in broader historical context. This essay offers an interpretation of Goodhart's own intellectual development that places his paper in the context of his life work to date, and his work in the context of the larger stream of development of monetary thought in the 20th century.

Viewed in the context of his manifold other papers and books, Goodhart's "Two Concepts of Money" (1998) stands out for its embrace of an explicitly extreme minority viewpoint. An economist among historians and an historian among economists, an academic among central bankers and a central banker among academics, Goodhart has in the past engaged both monetarism and Keynesianism without wholeheartedly joining either camp, preferring instead to identify points of agreement and disagreement with both. His willingness seriously to engage also with more extreme views, such as the free bankers on the one side and the post Keynesians on the other, shows him to be no knee-jerk moderate since here too he finds things to appreciate as well as to criticize. What brings such a man to lump almost everybody else together as Metallists and to proclaim in opposition his own membership in the rather motley camp of Cartalists?

The Making of an Economist

A monetary historian by training and predilection, Charles Goodhart initially formed his views on money from detailed study of the gold standard period preceding World War I. He focused first on The New York Money Market and the Finance of Trade, 1900-1913 (1969) and then turned his attention to The Business of Banking, 1891-1914 (1972) in the UK. Here at the beginning of his career he formed the idea, which later experience never gave reason to abandon, that domestic credit fluctuation is more cause than effect of domestic monetary fluctuation. This is so in the United States, despite the inelasticity of currency under the National Banking System, but also in the United Kingdom and despite its position as the center of the international gold standard. "The great years of the gold standard were remarkable, not because the system enforced discipline and fundamental international equilibrium on this country by causing variations in the money supply, but because the system allowed for the development of such large-scale, stabilising and equilibrating, short-term, international capital flows, that autonomous domestic expansion was rarely disrupted by monetary or balance of payments disturbances" (1972, 219).

After a brief flirtation with academia, in 1968 Goodhart joined the Bank of England where for seventeen years he continued to develop his views, by studying the post-World War II system with a special focus on the monetary problems of the UK. His work as an applied monetary economist positioned him intellectually with a foot in each of the two worlds of academic monetary theory and central banking practice. In his textbook Money, Information and Uncertainty (1975) he engaged the academics, finding in uncertainty and transactions costs the theoretical justification for money that is lacking in the full Arrow-Debreu equilibrium model, and in Tobin's portfolio adjustment model a usable framework for his applied monetary work. In his collection Monetary Theory and Practice, The UK Experience (1984), the audience is central bankers and the papers record Goodhart's part in the Bank's battle against monetary base control in the heyday of monetarism. In both books, Goodhart finds that the post-World War II world operates more or less like the pre-World War I world, but with the extra degree of freedom that comes from a national currency not pegged to gold.

In 1985, Goodhart left the Bank to take up a position as Norman Sosnow Professor of Banking and Finance at the London School of Economics, where he has remained ever since. There he has continued his practice of standing in between the two worlds of academic theory and central banking practice, but with a distinctly different objective. When he was at the Bank and academic debate was about monetarism versus Keynesianism, there was something for a central banker to engage. Characteristically, Goodhart identified with neither of the opposing camps, but looked instead to the theory of disequilibrium money to find "a bridge, a rapprochement, between the two schools of thought" (1984, 19; Chapter 10). All this changed when the academic center of gravity shifted in a liberal (pro-market) direction, so much so that some academics were going so far as to espouse a radical free banking position. A central

banker could not easily engage such an argument without being suspected of self-interest.

Goodhart moved back into academia and devoted himself to making the positive case for central banking in his next book The Evolution of Central Banking (1988).

The argument is primarily historical. It's taken us centuries, so Goodhart tells us, to learn that what banks most need from a banker's bank, namely a microeconomic lender of last resort, can best be provided by a noncompetitive non-profit-maximizing government's bank.

Advocates of free banking miss this lesson of history, that central banking is preferable to free banking even from the narrow point of view of bankers' own self-interest. They miss also the additional attractions of central banking from the larger point of view of macroeconomic price stability. Central banking may not provide much leverage over the system, but it makes no sense to embrace a free banking system that offers even less leverage.

Subsequently, Goodhart has used his independent intellectual platform at the LSE to speak out on issues of monetary policy and financial (de)regulation as they arose. Most important for the purposes of this paper, Goodhart has staked out a position as a skeptic of the EMU, which position has much the same flavor of his earlier defense of the institution of central banking against its radical detractors. Once again there is a radical monetary idea emerging from academia--this time it is the optimal currency area idea (Mundell 1961)--and once again the effect is to threaten the position of central banking--this time the threat is the replacement of national central banking with a European Central Bank and a common European currency. The Metallism versus Cartalism frame of his 1998 "Two Concepts of Money" is recognizably an update of the free versus central banking frame of his 1988 book. Once again Goodhart makes the case, and once again on historical grounds, for national central banking.

What is new is the sense that now Goodhart is in a definite minority, and he knows it. In 1988 he was defending central banking against an extremist minority viewpoint. Now he feels himself in the minority defending against a viewpoint apparently endorsed by the majority.

The Economics of Mr. Goodhart

So far as I am able to piece it together, Goodhart's model of how the world works is something like the rough sketch shown in Figure 1 which shows the circular flow of spending and income connecting with the monetary system through the flow of bank credit. On the real side, bank credit finances spending. On the monetary side, an expansion of bank credit tends to cause an expansion of bank liabilities and hence the money supply, which tends subsequently to put upward pressure on prices. Note how, against the academics, Goodhart sides with central bank practitioners who "feel that, in reality, there is no alternative for a central bank but to provide the banking system with the cash it needs. The effective choice of central banks is limited to the terms on which such cash is made available" (1984, 15). But the ideas of academics, both Keynesian and monetarist, also come in. In Keynesian fashion, spending decisions determine income, while in monetarist fashion the money supply determines price inflation.

This eclectic mix has something of the flavor of the standard Hicksian IS/LM story, albeit with a horizontal LM curve to capture the endogeneity of the money supply, but Goodhart never embraces the formalism because the underlying structure of his story is different. In Goodhart, the leading role is played by bank credit and that makes it impossible to treat the goods and money markets as different markets. The importance of bank credit comes from the fact that banks are in a position to offer credit to worthy customers whom the open credit

markets will never touch. “The essence of banking lies in the assessment, monitoring and risk-handling of loans in circumstances where information is partial and asymmetric” (1995, 20). In Goodhart’s view, it is autonomous bank credit decisions that determine whether the economy expands or contracts on the margin.

Given this view of the world, and presuming that one is concerned with price stability, it follows that one looks for a way to regulate the flow of bank credit. Leaving aside direct credit controls, the principle leverage would seem to come from control of the price of credit, so-called bank rate, though there is some question about how much leverage even this tool affords on account of uncertainty about interest elasticities. The main problem is the importance of expectations. If, during a boom, expectations are for rising inflation, it may take a very high nominal interest rate to slow a credit expansion. If, during a contraction, expectations are for falling inflation, it may take a very low nominal interest rate to avert a credit collapse. It is a position reminiscent of Ralph Hawtrey (1928) and on that account firmly within the tradition of English central banking.

Additionally, and quite apart from the question whether or not one can regulate the aggregates effectively, the central bank can provide a backstop source of credit for individual borrowers in time of need. Even if (macroeconomic) price stability proves elusive, (microeconomic) financial stability can be ensured by judicious use of the lender of last resort function. Here Goodhart departs somewhat from the tradition of Bagehot (1873) in his insistence that the point of LOLR intervention is to save institutions not markets. The reason goes back to the centrality of bank credit in Goodhart’s thought, which inclines him to focus on preserving the key credit relationship between a banker and his clients.

This view of the world begs the question why the central bank can control interest rates, and why it is in a position to act as lender of last resort. As a central banker Goodhart simply knows that it can, but as an academic he recognizes that the question needs an answer. His answer has so far always been the Cartalist answer that the central bank is an arm of the state, from which it inherits the “power to impart a fiat value on a virtually costless piece of paper” (1975, 11). It is perhaps not a completely satisfactory answer, as we shall have occasion to elaborate below, but it does help to explain why Goodhart has spent so much energy countering the academic advocates of free banking who want to separate money from the state, and it helps as well to explain his skepticism about plans for European monetary union in advance of political union.

Goodhart’s position on free banking has developed over time. Initially, so impressed was he by the centrality of the bank credit function that he was willing to contemplate giving up the payments function to a separate payment system operated as a network of collective investment funds transferring variable price shares (as proposed by some of the free bankers). Even leaving the payments system aside, banks would still have a role on account of their credit function, and deposits would still be the natural funding source for that function, so there would still be a role for central banks operating through bank credit (1988). In this respect, it seems fair to say, the extent of bank credit securitization in subsequent years has surprised Goodhart and stimulated him to reconsider his position as financial deregulation and innovation have reduced the leverage a central bank can exert through bank credit. Now when he writes about the payments system, he insists on “the need for a Central Bank for the ultimate credibility of a net settlement system” (1995, 346). The urgency with which Goodhart now argues the Chartalist position seems to come from his continuing belief that the central bank still has a lot of leverage if only it will use

it. The power of the state to declare what is legal tender represents for him the continuing power of the state to regulate market outcomes.

On monetary union, Goodhart's position has also gone through some development. Twenty-five years ago, he wrote: "It seems unlikely then that a fixed exchange-rate system can be maintained on any permanent basis until political harmony and social agreement allow the division of burdens within the area and the direction of policy in each major part of the system to be decided by an accepted central political process. Once that stage has been reached the next step, to a more efficient single-currency area, eliminating the need for separate currencies, exchange transactions, etc..., should be simple" (1975, 301). His point is that, in a single currency system, monetary policy is powerless to buffer regional shocks and one is bound to rely for that purpose on fiscal transfers between regions, which transfers are only possible if the regions are politically and socially unified. Until political and social unification, therefore, it would seem wise to retain the buffering ability of an independent monetary policy in each geographic region.

It is just such wisdom that was ignored in the succeeding decades. In his edited volume on EMU and ESCB [European System of Central Banks] after Maastricht (1992), Goodhart sees the new European currency as little more than an expanded Deutschemark, and the new European central bank as little more than an expanded Bundesbank (p. 315). Bad enough that the emerging system looks to prevent fiscal adjustment by member states without providing any workable mechanism for fiscal adjustment at the federal level, so that everything depends on the monetary authority. What makes matters worse is that the monetary authority, modeling itself after the Bundesbank, seems determined to focus monetary policy narrowly on price stabilization, which means that nowhere in the system is there any scope for macroeconomic

stabilization policy. Even worse than that, it is not even clear that European central bank is prepared to support financial stability by operating as lender of last resort, since it eschews the prudential regulation that goes hand in hand with that function.

Goodhart's concern about the European Monetary Union traces back to the link he draws between state power and monetary stabilization. As he sees things, the move toward monetary union amounts to hobbling state power at the national level without increasing it anywhere else in the system, and the dependable result is likely to be increased instability. Ignoring all the lessons of history, the architects of the new system are apparently placing their trust in market forces, so much so that they cavalierly abandon traditional mechanisms of regulation, both microeconomic and macroeconomic, without embracing any alternative mechanisms. "Keynes is most assuredly dead. Monetary policy is to be centralised and dedicated to the over-riding primary task of achieving price stability. There is to be little, or no, fiscal stabilisation from the central EC budget...The pressures on national fiscal authorities will be to limit and restrain the response of fiscal deficits to shocks...This will, I fear, cause problems" (1992, 297).

Metallism and Cartalism

Goodhart grew up intellectually on the gold standard, but has spent much of his career doing applied monetary analysis of the evolving national money standard system. In this sense, the debate between metallism and cartalism has always been with him in a certain tension between the intellectual habits of his mind and the evidence of his senses. It is that tension that has made him one of the most interesting and insightful monetary economists of his generation, as well as sometimes one of the most difficult to follow. His uncanny ability to see merit in apparently mutually exclusive points of view comes in part, so I suppose, from lifelong struggle

to find an overarching position to resolve the tension in his own thought. In the previous section, it was suggested that the urgency of Goodhart's advocacy for Cartalism can be understood as stemming from his concern about the consequences of the diminished and diminishing power of the state, a tendency caused partly by market forces and partly by political forces within the state itself. That concern explains why he is urging Cartalism now, but it's not why he was urging Cartalism back in 1975. A full understanding of his current view requires abstracting from the current political scene in order to focus more narrowly on the analytical issues at stake.

Looking back to Goodhart's earliest work, it seems clear that study of the gold standard left him with a sense of the importance of distinguishing credit (promises to pay) from money (means of payment). Under the gold standard, gold was the ultimate money. National currencies were convertible promises to pay gold, and national credit structures were built from promises to pay national currency, so everything was ultimately a promise to pay gold. The job of the central bank, narrowly conceived, was to maintain gold convertibility of the national currency, which it did by manipulating bank rate in order to influence the credit superstructure built on top. One effect of successful maintenance of gold parity was a certain internal price stability, not complete stability of course since the value of gold could fluctuate, but certainly no tendency for long run inflation or deflation. That's how the gold standard worked and, so far as the young Goodhart was concerned, that was how money worked more generally.

The problem was that the collapse of the gold standard, and the exigencies of war and depression finance, left the system with no such ultimate money. Instead, the chain of promises to pay seemed to end with each national currency. Given the breakdown of the international monetary system, national currency appeared to be the ultimate means of payment, not a promise to pay. The job of the wartime central bank was not to maintain gold parity of the currency but

rather to maintain currency parity of the war debt by standing ready to purchase whatever debt was not taken up by the market. Even more, state debt hardly seemed to be a genuine promise to pay since what it promised was national currency whose supply the state itself controlled through its control over the central bank. Thus, on the state side of the ledger, there seemed to be no promises to pay, only fiat currency. The concrete experience of war finance ran roughshod over the distinction between credit and money that had seemed so natural in the gold standard period

The monetary theory that grew up in the aftermath of this experience tended also to blur lines that had formerly been sharp, and to organize analysis on different lines. Money came to be defined not as means of payment but as medium of exchange, a definition that included both bank promises to pay (deposit accounts) and means of payment (currency). The old distinction between credit and money appeared only in weakened form as the (Gurley/Shaw) distinction between inside and outside money. Currency itself was viewed as outside money, which is to say as a kind of paper gold, a fiat currency not a promise to pay some higher order ultimate means of payment.

The tension in Goodhart's thought comes from the conflict between his sense of the naturally hierarchical character of all monetary systems and his observation of the apparently nonhierarchical character of the actual postwar monetary system. We see this tension clearest in his Money, Information, and Uncertainty (1975), which can be read as the struggle of a pre-WWI sensibility to come to grips with post-WWII monetary theory. True to his historical training, Goodhart insists in Chapter 1 on the distinction between "the narrower concept of a means of payment and the broader concept of a medium of exchange" (p. 1, Section A). True to his times, he proceeds to define money in such a way as to include both fiat currency and bank deposits (Section D), thereby muddling the distinction with which he started. In this context, his

embrace of cartalism (in Sections B and C) serves as a bridge between pre-WWI thinking and post-WWII experience. Insisting on the special quality of the state's money (means of payment) allows him to retain something of the older sense of hierarchy (Section B), while recognizing the pervasive role of the state throughout the system has the effect of flattening the hierarchy (Section C). Here at the beginning, Goodhart's Cartalism served as a bridging device that allowed him to step between the vanished pre-WWI world and the lived experience of his own time.

It was a bridge built originally to help Goodhart communicate from his own shore with an audience largely inhabiting the opposite one. Having built the bridge, however, he proceeded to walk across it and today, twenty five years later, the bridge has fallen into disrepair from lack of use. "Two concepts of money" represents Goodhart's attempt to build it once again, but now from the opposite direction. Today he is the cartalist building a bridge to the metallists, not so that he can walk over to them but so that he can lead some of them back over to his own side. At any rate, that seems to be his intention.

There are some problems however with this view of how the current intellectual landscape is organized. Today, war-finance habits of thought are scarce on the ground, to be sure, but that doesn't mean we are all metallists. Indeed, it's hard to find anyone who traces the value of currency to its metallic backing. If anything we are all cartalists now, but in a sense broader than that encompassed by the special dictates of war finance or of state-directed economic development, which is to say broader than the classic conception outlined in Knapp's State Theory of Money (1905). We are not fiat money cartalists but rather credit money cartalists. Today the value of national currency derives in most cases not from the raw power of

the state, but from its creditworthiness in commercial terms. National currency is not a fiat currency but a promise to pay.

In an integrated global financial system, the chain of promises to pay does not end with the national currency. At each moment in time, each national currency is instantly convertible into a wide range of financial assets, including other national currencies, and, given a little more time, convertible also into a wide range of goods. In general, the rate of convertibility is not fixed, and this is an important detail, but it should not make us lose sight of the more important fact that today national currencies are commercial currencies. Their (fluctuating) value derives from the calculation of market participants, not the authority of the nation state (and certainly not from any metallic backing).

But if we're all cartalists now, then why does Goodhart portray himself as practically alone in carrying the cartalist banner against an overwhelming metallist multitude? Possibly, and here I am guessing, he recognizes that the emerging modern system looks like being more similar to the pre-WWI gold standard system than the various monetary systems we have had since then. Since that system was metallist, in the sense that the ultimate money was gold, Goodhart feels justified in classing as metallists all those who accept the current apparent direction, and especially those who are actively advocating for it. He sees the European Monetary Union as a kind of supranational gold standard, albeit one without even the degree of freedom allowed by the gold points, and one with parities even more irrevocably fixed by the elimination of national units of account (1995, p. 421, fn. 2). This seems a fair characterization, so far as it goes, but is that such a bad thing?

Goodhart worries that the emerging euro standard system will enforce excessive discipline on member states. But certainly he can't be thinking that the euro standard will

enforce more discipline than the gold standard, and he himself is on record about the gold standard system emphasizing “the development of such large-scale, stabilising and equilibrating, short-term, international capital flows, that autonomous domestic expansion was rarely disrupted by monetary or balance of payments disturbances” (1972, 219). Is there any reason to expect less in the modern world? Probably not, and probably Goodhart himself thinks not. His concern is apparently with the increased reliance on capital flows in private markets, and decreased reliance on fiscal transfers through the political system, and that seems to me quite a legitimate concern. I would question however whether the Metallism versus Cartalism frame is very well-suited for bringing that legitimate concern into the forefront.

Taking up the matter that seems closest to Goodhart’s heart, I have to say that it does not seem self-evident to me that the increasing commercial character of state debt and national money is a tendency that necessarily marks a weakening of the state. States have always arrogated to themselves the right to designate legal tender, but only financially weak states lacking sufficient tax revenue or access to credit have used monetary issue as a primary means of state finance. Modern states, at least the ones with which Goodhart is mainly concerned, have found that putting their credit on a commercial basis gives them more, not less, degrees of freedom to pursue their ends. Lest this point be misunderstood, I hasten to add that democratic legitimacy (not budgetary tightness per se) appears to be quite the most important guarantor of creditworthiness. What is important in the marketplace is not so much the absolute size of government as the accepted legitimacy of its spending priorities so that taxes can be raised to finance them.

Modern democratic and financially strong states typically treat money issue as the funding source of absolutely last resort, and this is as it should be. Indeed, a main function of the

modern central bank (a function of which Goodhart apparently approves) is to keep money issue separate from state finance. Democratic states have gone along with central bank “independence” because they have come to recognize that the state’s credit is a beneficiary of price stability just as much as the private sector’s credit. Low inflation risk premia make for low interest rates in commercial markets, for the public and private sector alike.

Conclusion

Like Goodhart, Joseph Schumpeter grew up on the gold standard but did his mature work under the national money system. Also like Goodhart, Schumpeter borrowed from Knapp’s State Theory of Money (1905) to frame his account of the history of monetary economics as, in part, a conversation between metallism and cartalism. By metallism, Schumpeter meant “the theory that it is logically essential for money to consist of, or to be ‘covered’ by, some commodity so that the logical source of the exchange value or purchasing power of money is the exchange value or purchasing power of that commodity, considered independently of its monetary role” (Schumpeter 1954, 288). Until the twentieth century, so he says, theoretical metallism of this type was accepted by almost all economists, though there were in all periods some deviants. In accord with the strength of metallism, analytical advance in economics took place mainly in the area of Real Analysis, and there was very little forward movement in Monetary Analysis. In practical spheres as well, the strength of metallism tended to stifle advance in money management.

The new century brought shifting focus on all three fronts. Not only did cartalism begin to enjoy sustained analytical attention, but also monetary analysis rose from a neglected subfield to attain near parity with real analysis, and managed money began to emerge as a viable

alternative to laissez faire. Most of this new discussion took place within the analytical framework of the quantity theory, broadly speaking. In America there was Irving Fisher with his transactions approach, and in Britain Alfred Marshall with his cash balance approach and Ralph Hawtrey with his income approach. The General Theory of Keynes (1936) pushed even farther on all three dimensions, and in this respect deserves its status as the paradigmatic accomplishment of its time. The problem was that Keynes, or at any rate his followers, pushed too far.

Generally speaking, Schumpeter saw this shifting focus as a positive development, a chance to pull together theoretical advances that had been happening around the margins for centuries, and a chance to consolidate those developments at the center of economics. He was however quite apprehensive about the rapid push for practical implementation in advance of solid analytical progress, and frankly appalled by rejection of hard-won analytical gains of the past. Schumpeter might have been describing himself when he wrote: “An economist may, for instance, be fully convinced that theoretical metallism is untenable, and yet be a strong practical metallist. Lack of confidence in the authorities or politicians, whose freedom of action is greatly increased by currency systems that do not provide for prompt and unquestioning redemption in gold of all means of payment that do not consist of gold, is quite sufficient to motivate practical metallism in a theoretical cartalist; this does not involve any contradiction” (1954, 289).

Schumpeter worried that his own times were going too far in the shift from metallism to cartalism, from real analysis to monetary analysis, and from laissez faire to managed money.

Today, at the end of the century, intellectual currents are shifting again. Like Schumpeter, Charles Goodhart worries that his own times are shifting too far, but in exactly the opposite direction: from cartalism to metallism, from monetary analysis to real analysis, and

from managed money to laissez faire. Schumpeter wrote as a scientist, concerned with preservation of hard-won analytical advance; Goodhart writes as an historian, concerned with preservation of hard lessons of history; both feel keenly the responsibility of defending knowledge against political zealotry. Both feel themselves to be fighting a losing battle against the tide of their times, and that only makes them more determined.

If Schumpeter were alive today, likely he'd be a cautious supporter of the EMU, but not because he favors metallism, real analysis, and laissez faire on analytical grounds. He would, I imagine, see the EMU as quite consistent with the cartalist spirit of the century. Knapp said that money is the creature of law. What could be more in the cartalist spirit than a deliberate attempt to establish a new money by law? Schumpeter would support the EMU, but would also be quite apprehensive about the audacity of such a move, and so would likely look with favor on the manifold restrictions and constraints that have been put in place around it. Schumpeter worried about giving too much freedom of action to untrustworthy political authorities, so he would be happy to see national authorities constrained without any corresponding loosening of constraints elsewhere in the system. The point is that Schumpeter, like Goodhart, was a theoretical cartalist but, unlike Goodhart, a practical metallist. Their different views on practical policy stem from much the same concept of money, but different concepts of political reality.

This counterfactual encounter of Mr. Schumpeter with the EMU may help put the actual encounter of Mr. Goodhart with the EMU in context. The counterfactual suggests that maybe different views on the EMU stem not from different fundamental analytical orientations, but rather from different assessments of who can be trusted with what power. Goodhart trusts the old-fashioned nation state and especially its central banking arm the Bank of England. He does not trust the newfangled constitutional mix with a federal European Central Bank and national fiscal policies. He fears that such a half-way house may be damaging and ultimately untenable. The fact that advocates for the EMU talk the language of metallism, real analysis, and laissez faire only makes Goodhart trust them less. Perhaps he is right not to trust them--he is certainly in a better position to judge than I am. I would only suggest that perhaps they are adopting this language not in the way a scientist would, as a rigidly held conceptual framework to guide scientific analysis, but rather in the way that politicians do, as a more temporary and flexible

framework to guide political and social evolution at a particular point in history. It would not be the first time that the boundary between practical and theoretical metallism has been hard to see. Schumpeter again: “There is no denying that views on money are as difficult to describe as are shifting clouds” (1954, 289).

How the World Works

Central Bank



Bank Rate



Bank Credit

Spending

Money Supply

Income

Prices

References

- Bagehot, Walter. 1873. Lombard Street: A description of the money market. New York: Scribner, Armstrong.
- Goodhart, Charles A. E. 1969. The New York Money Market and The Finance of Trade, 1900-1913. Cambridge, Mass.: Harvard University Press.
- . 1972. The Business of Banking, 1891-1914. London: Weidenfeld and Nicolson.
- . 1975. Money, Information and Uncertainty. London: Macmillan.
- . 1984. Monetary Theory and Practice: The UK Experience. London: Macmillan.
- . 1988. The Evolution of Central Banks. Cambridge, Mass.: MIT Press.
- , ed. 1992. EMU and ESCB after Maastricht. London: Financial Markets Group, London School of Economics.
- . 1995. The Central Bank and the Financial System. Cambridge, Mass.: MIT Press.
- . 1998. "The two concepts of money: implications for the analysis of optimal currency areas". European Journal of Political Economy 14: 407-432.
- Hawtrey, Ralph G. 1928. Currency and Credit, 3rd ed. London: Longmans, Green.
- Mundell, Robert A. 1961. "The theory of optimum currency areas". American Economic Review 51: 657-664.
- Schumpeter, Joseph A. 1954. History of Economics Analysis. New York: Oxford University Press.