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Rules, Discretion and Financial Crises in Classical and Neoclassical Monetary Economics

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ABSTRACT

This paper traces the evolution of debate about the question of Rules versus Discretion in monetary policy from about 1800 until the mid 1930s. Particular attention is paid to long-versus-short-run issues, notably with respect to the 1844 Bank Charter Act, and the Bagehot Principle, as well as to the effects of developments in the theory of value, the cycle and index numbers on economists' perception on the scope of monetary policy. A brief discussion of post-World-War-2 developments links this material to present day concerns and common themes are noted.

1. MODERN FINANCIAL CRISES AND THEIR PREDECESSORS

THERE ARE, no doubt, important differences between the financial crises of the late 1990s and those that regularly occurred in the 19th and early 20th centuries, but they have certain important elements in common. The most obvious of these is the tendency of domestic and international financial instability to interact with one another in ways that have evidently surprised some observers of recent events. As Nancy Marion (1999) has remarked, problems associated with speculative attacks on fixed exchange rates and bank runs in the last few years have generated largely separate literatures. This is hardly to the credit of modern economics, for the 19th century literature concentrated heavily on the relationships between these phenomena. In particular it carefully analysed the policy dilemma created by the fact that these two types of crises, which routinely occurred together in those years, seemed to require opposing monetary remedies, the provision of ample liquidity to restore domestic confidence in the first case, and the imposition of financial stringency to right the balance of payments in the second.[2] And this earlier literature also explicitly linked these questions to the more fundamental issues of whether monetary policy is better guided by rules or discretion, and if by rules, then the nature of those most likely to be successful.

In this paper, I shall discuss the treatment of these matters in the Classical and Neoclassical literature that developed before and shortly after the first World War, not so much with a view to drawing direct morals for particular current events, but rather to present certain perennial problems of monetary policy from an unfamiliar and, as I hope, for that reason revealing perspective. I shall deal first of all with the development of ideas about the rules of the gold-standard in the first three quarters of the 19th century, go on to show how developments in both

theoretical and empirical economics weakened the intellectual foundations of those rules in the years before World War 1, and then discuss the way in which these developments became the basis for practical policy in the interwar years. I shall end the paper with a brief discussion of developments after the Second World War, arguing that currently rather widely held views that clear rules for either price-level or exchange-rate stability are desirable, and that any attempts at compromise between the pursuit of these two goals are bound to lead to trouble, have roots in ideas that were well developed before the First world War.

2. The Gold Standard Rule in the 19th century

There is one all-important difference between the institutional and intellectual contexts in which the Classical economists worked before about 1870 and those that form the background to present day discussions: namely, the range of admissible monetary rules was much narrower. Nowadays the option of a flexible exchange rate regime, albeit usually accompanied by well defined targets for some such domestic variable as the inflation rate, is regarded as a reasonable policy option for an open economy. Among the English Classical economists, on the other hand, there was a widespread consensus that the over-riding aim of monetary policy should be the maintenance of the convertibility of sterling into gold at a fixed price, and maintained it was, from 1821 until 1914.[3] In order fully to appreciate 19th century commentary on monetary policy, then, it is important to understand the reasons for the depth of its creators' commitment to the gold standard.

The role of economic theory in supporting the gold standard

To begin with, mainstream Classical economics lacked the idea of a price index that could measure the purchasing power of money over some representative bundle of goods, let alone a usable version of such a device.[4] As Ricardo put it:

> It has been said that we might judge of its [money's] value by its relation, not to one, but to the mass of commodities. . . .when we consider that commodities are continually varying in value, as compared with each other; and that when such variation takes place, it is impossible to ascertain which commodity is increased , and which diminished in value, it must be allowed that such a test would be of no use whatever (1816, p. 59).

Ricardo was here discussing the problem of measuring money's value at a time when gold convertibility was suspended, but even under these circumstances, the lack of a useable index number concept meant that stability of the value of money in terms of gold was identified far more closely with stability in its purchasing power than it could be nowadays. This identification gained further authority from Classical monetary economics' 'micro-foundations', which lay in the cost-of-production (or even the labour) theory of value. This theory seemed to imply that there was something natural, and in some treatments even pre-ordained, about the use of the precious metals as standards of value.

Now as Maria Cristina Marcuzzo (2002) and Macuzzo and Annalisa Rosselli (1994) have stressed, Ricardo himself was careful to distinguish between variations in the value of money stemming from the actions of the authorities and those that, under convertibility, would stem from variations in the cost of production of the precious metals, and he did not believe that the authorities could, or should, be held accountable for the latter. Rather he took the view that

though '...uniformity in the value of the circulating medium is an object greatly to be desired...' it was nevertheless the case that, under any commodity standard, 'No plan can possibly be devised which will maintain money at an absolutely uniform value, because it will always be subject to those variations to which the commodity itself is subject, which has been fixed upon as a standard...' (1816, p. 54). Ricardo nevertheless concluded that, while 'Gold and silver are themselves subject to greater variations than it is desirable that a standard should be subject to. They are, however, of the best with which we are acquainted' (p. 60).

In 1816 Ricardo was inclined to favour silver as the basis for the British monetary system, on the grounds that it was the metal favoured by most of Britain's trading partners, but in that same year legislation settled the matter in favour of gold, and thereafter the desirability of gold convertibility quickly became conventional wisdom.[5] By the time it was restored to the British monetary system in 1821, moreover, Ricardo's carefully nuanced qualifications about the inability of convertibility to eliminate variations in the value of money stemming from the real side had begun to be largely overlooked in practical discussions. Gold convertibility and the soundness of the monetary system became essentially synonymous.

In addition to all this, it was not until the 1830s that it became widely recognised that financial crises were simply one repeating event in a cyclical pattern. Even then, the name commonly given to that pattern, 'the credit cycle' suggests that it was regarded primarily as a phenomenon of organised financial and commodity markets. The fluctuations in real economic activity that we now regard as central features of the business cycle did not attract systematic attention until the 1860s. In an era before economists began to study the causes and consequences of real economic fluctuations, the maintenance of high employment could not be systematically analysed as a policy goal that might conflict with the preservation of stability in the value of money.

Reasons for a legislated rule

These properties of Classical economics enabled its exponents to be single-minded about the maintenance of the price of gold as the over-riding goal of monetary policy, but they do not fully explain their commitment to a legislated rule, requiring the convertibility of paper money on demand into specie at a fixed price. It is, after all, quite possible to think it desirable that a central bank should pursue a gold-price target, without going so far as to demand that it be legally bound to do so. That, indeed, was essentially the position taken vis-a-vis the Bank of England by Henry Thornton (1802) perhaps the most creative of all Classical monetary economists, writing early during the period when legal gold-convertibility requirements were suspended as a war-time measure. The trouble was that, as events in fact worked out in subsequent years, particularly 1808-10, a stable price of gold bullion was not maintained. Furthermore, the Bank's directors and their supporters argued that this was none of the Bank's doing, that the institution was a helpless victim of circumstances beyond its control, to which it had no reasonable choice but to respond passively.

Lying behind this defence was the economic idea which, following Lloyd Mints (1945), we nowadays call the 'real bills doctrine'. The core claim of this doctrine is that a central bank which acts so as to ensure that the system over which it presides makes only well secured short-term loans to reputable borrowers at the discretion of the latter will also ensure that the 'needs of trade' for bank credit are always accommodated, without running any risk of

imparting either inflationary or deflationary impulses to the economy. But, as Thornton (1802) showed in some detail, this claim is fatally deficient. Specifically it ignores the influence of the rate of interest on the volume of business borrowing; and it also neglects the fact that, when bank credit is extended or withdrawn, money is created or destroyed with effects on the economy over and above those emanating from credit market transactions themselves.

In 1810, the Bank of England's directors nevertheless deployed the real bills doctrine in their evidence to the House of Commons Bullion Committee, which had been set up to enquire into the reasons for the sharp and sustained rise in the price of bullion that had taken place in the two previous years. So inept was their analysis on this occasion that Walter Bagehot (1873) would later refer to it as 'almost classical in its nonsense'. Not surprisingly, perhaps, given that Thornton was one of its members, the Committee's conclusion in the face of their performance was that the directors were not to be trusted with discretionary powers. The Bullion Report of 1810, (see Cannan, 1919) gave a decisive impetus to the case for subjecting the Bank's activities to the legislated rule that had been suspended in 1797 and would define the gold standard in Britain until the outbreak of the first world war.

Financial crises under the gold standard rule

The prelude to the typical crisis analysed by Classical and Neoclassical economists was a cyclical upswing, about whose origins they were often unclear: in 1848, J. S. Mill was content to refer to 'some accident which excites expectations of rising prices' and to leave it at that. This accident, and the expectations it created, would however

> set speculations at work in several leading departments at once. The prices rise, and the holders realize, or appear to have the power of realizing, great gains . . . . At periods of this kind a great extension of credit takes place. Not only do all whom the contagion reaches employ their credit much more freely than usual; but they really have more credit, because they seem to be making unusual gains, and because a generally reckless and adventurous feeling prevails, which disposes people to give as well as take credit more largely than at other times, and give it to persons not entitled to it (1848, as repeated in 1871, p. 542).

The generic pre-first-world-war cycle had both international and domestic aspects. Typically the upswing came to an end because, as W S Jevons put it, 'the rise in prices thus produced turns the foreign exchanges against the country, and creates a balance of indebtedness which must be paid in gold. The basis of the whole fabric of credit slips away, and produces that sudden collapse known as a commercial crisis ' (1875, pp. 315-16).[6]

The Classical economists were from the very outset aware that financial crises could cause business failures in general, and bank failures in particular, and that they could disrupt real activity too, albeit temporarily. Their avoidance was therefore agreed to be an important secondary goal of policy. To use the vocabulary of the time, it was understood that 'drains' of specie from the banking system in general, and the Bank of England in particular, could be either 'external' or 'internal' in nature, and that external and internal drains also tended to occur more or less simultaneously. However, it was also understood that an external drain required monetary stringency to cure it, and an internal drain the very opposite. Within the Classical tradition, one can identify two approaches to the policy dilemma that these facts posed. Both orig-

inated on the 'Bullionist' side of the controversies that marked the period 1797-1821 when gold convertibility was suspended, among this viewpoint's 'moderate' and more 'extreme' exponents respectively. The first approach, associated in particular with Henry Thornton, recommended a degree of central bank discretion in dealing with crises, and the second, with important origins in the work of Ricardo, sought to cope with them by extending the legislated rules governing the monetary system beyond that requiring gold convertibility. The demarcation between these approaches was not sharp during the Bullionist controversy itself, but it would become much clearer in subsequent discussions.

Exponents of both points-of-view accepted that, under a gold convertibility rule, or even in its absence as in the 1797-1821 period, provided that the maintenance of the price of bullion was the over-riding aim of policy, a balance of payments deficit implied an export of gold, and that this, considered in isolation, required domestic monetary contraction to counteract it. They also understood that such a contraction would tend to create apprehension on the part of domestic firms facing a fall in demand for their output, and that this would, in turn, increase the attractiveness to them of gold coin and Bank of England notes as short-term stores of value. Thornton analysed the factors at work here thus in 1802.

> ...when a season of distrust arises, prudence suggests, that the loss of interest arising from a detention of notes for a few additional days should not be regarded.
> It is well known that guineas are hoarded, in times of alarm on this principle. Notes it is true are not hoarded to the same extent; partly because notes are not supposed equally likely, in the event of any general confusion, to find their value, and partly because the class of persons who are holders of notes is less subject to weak and extravagant alarms. In difficult times, however, the disposition to hoard, or rather to be largely provided with Bank of England notes, will, perhaps, prevail to no inconsiderable degree. This remark has been applied to Bank of England notes, because these are always in high credit; and it ought, perhaps, to be chiefly confined to them (1802, p. 96).

The case for discretion

Now for the first three quarters of the 19th century, the Bank of England was a privately owned joint-stock company whose directors usually did not understand, or were unwilling to acknowledge, that the institution played any special role in the monetary system. This was of great practical importance, because the proper response of a private bank to a persistent loss of reserves arising from any cause is to reduce its lending. To the extent that the Bank of England acted like a private bank, therefore, its response to an external drain of gold, to an adverse balance of payments, could actually provoke an internal drain which could in turn become a run, and even a panic. At such a time, the Bank of England was the banking system's *dernier resort* for liquidity, to use the phrase coined by Francis Baring as early as 1797, but at the very time when its services in this regard were most needed, its insistence on behaving just like any other bank ensured that it would be least likely to provide them.

Again we may let Thornton explain the matter:

> The country banker, in case of alarm, turns part of the government securities, bills of exchange, or other property which he has in London, into Bank of England notes, and those

> notes into money; and thus discharges many of his own circulating notes as well as enlarges the fund of gold in his coffers. ...thus the country banker by no means bears his own burthen, while the Bank of England sustains a burthen which is not its own, and which we may naturally suppose that it does not very cheerfully bear (1802, p. 180).

Thornton's preferred solution to the dilemma implicit here was set out in 1802, and continued to play a prominent role long after his death, notably in the debates of the 1840s. It was for the Bank of England to acknowledge that it was indeed a central bank and to give priority to avoiding, or if that was impossible, at least ameliorating, the internal drain. Faced with a loss of reserves, the Bank should not automatically set in motion a monetary contraction, but rather should act so as to *prevent* the volume of its liabilities shrinking to an extent that might provoke a crisis in the domestic banking system:

> ...the reduction of the quantity of Bank of England paper is by no means a measure which ought to be resorted to on the occasion of every demand upon the Bank for guineas arising from the high price of bullion, and ... such a reduction may even aggravate the sort of rise which is caused by alarm in the country (1802, p. 104).

As an empirical matter, Thornton believed that external drains would often prove to be temporary. During the French wars, the British government was from time to time involved in paying subsidies to allies, and foreign trade was sometimes disrupted by military activity as well. Though the circumstances creating these temporary real shocks, as we would now call them, disappeared in 1815, a third source of difficulty, also noted by Thornton, namely fluctuations in the domestic harvest which could create a need for grain imports, persisted well into the 19th century. Such shocks, Thornton and those who came after him argued, should be ridden out. Only if an external drain proved persistent should domestic contraction be resorted to, and then only as gradually as was feasible.

It was understood that the pursuit of such a policy would require the Bank of England to hold relatively large specie reserves, larger certainly than would be needed if the only aim was to ensure the safety of the Bank itself, and would involve its directors in exercising considerable discretion in their management as well.

> The Bank, by proceeding to that reduction of its own paper which is necessary to bring gold into the country, may possibly annihilate, before it is aware, a part even almost the whole of the circulating country bank notes, and much other paper also; and it may, in that case, have to supply gold sufficient to fill the whole void, which it has created; but it may be called upon to furnish large additional sums which may forthwith be hoarded in consequence of the alarm thus occasioned. Hence, even though it should increase the supply of gold from abroad; it may augment, in a far greater degree, the demand for it at home. For this reason, it may be the true policy and duty of the Bank to permit, for a time, and to a certain extent, the continuance of that unfavourable exchange, which causes gold to leave the country, and to be drawn out of its own coffers: and it must in that case, necessarily increase its loans to the same extent that its gold is diminished. The Bank, however, ought generally to be provided with a fund of gold so ample, as to enable it to pursue this line of conduct, with safety to itself, through the period of an unfavourable balance; a period, the duration of which may, to a certain degree, be estimated, though disappointment in a second harvest may cause much error in the calculation (1802, p. 152).

Towards a rule-based alternative

David Ricardo would have none of this.[7] For him, any external drain of specie implied that the domestic monetary system was overexpanded: '...the temptation to export money in exchange for goods, or what is termed an unfavourable balance of trade, never arises but from a redundant currency' (1810-11, p. 59) and so the proper response to it was indeed always monetary contraction. Writing during the period of its suspension, Ricardo also thought that the legal requirement to maintain convertibility was sufficient to ensure that the Bank of England would always act promptly in this regard, that the required contraction would be relatively small and hence that it would be unlikely to have serious domestic repercussions. Indeed, he sometimes seemed to argue that such a requirement had in the past been sufficient to prevent an external drain from arising in the first place: 'The necessity which the Bank felt itself under to guard the safety of its establishment, ... always prevented, before the restriction from paying in specie, a too lavish issue of paper money' (1810-11, p. 76).

Thornton himself moved closer to this position after 1802, as his role in preparing the *Bullion Report* makes clear. Even now, the extent of this shift, and the reasons for it, are questions for debate. Suffice it here to suggest that one defensible view has Thornton's theoretical position remaining largely unchanged, but his views on what that position implied for practical policy hardening, partly under Ricardo's influence, but perhaps also in response to the above-mentioned evidence of the unreliability of the Bank of England's directors as executants of discretionary policy the *Report* still echoed Thornton's opinions of 1802 when it suggested that, under arrangements then prevailing,

> ...although it ought to be the general policy of the Bank directors to diminish their paper in the event of a long continuance of a high price of bullion and a very unfavourable exchange, yet it is essential to the commercial interests of this country, and to the general fulfilment of those mercantile engagements which a free issue of paper may have occasioned, that the accustomed degree of accommodation to the merchants should not be suddenly and materially reduced; and that if any general and serious difficulty or apprehension on this subject should arise, it may be...counteracted without danger, and with advantage to the public, by a liberality in the issue of Bank of England paper proportioned to the urgency of the situation. (1810, p. 60)

Crucially, however, the *Report* also recommended that the legally binding obligation to maintain convertibility be re-imposed on the Bank within two years, not least because, in the Committee's opinion, this would in future, as it had in the past, deter that 'free issue of paper' which could in the first place create a state of affairs such as the above passage describes.

The 1844 Bank Charter Act

Gold convertibility was in fact not to be restored until 1821, and the events of the 1820s and 1830s, would in due course show that optimism about the unaided capacity of such a rule to render the monetary system significantly less prone to financial instability was misplaced. Severe crises involving internal drains and bank failures occurred under convertibility in 1825, 1836 and 1839, and these eventually prompted a renewal of debate about the proper conduct of the Bank of England, the so-called Currency School - Banking School controversy. Here the issue

of rules versus discretion in the specific matter of coping with crises, which had lain just below the surface of earlier exchanges, was squarely joined. The Banking School were content with the then existing institutional *status quo*, but urged the Bank of England to adopt what amounted to the principles of discretionary policy that Thornton had set out in 1802 and which have been described above. The Currency School, on the other hand proposed a legislated rule, additional to that requiring convertibility, that would force the Bank of England to behave along the lines Ricardo had recommended, and had apparently expected it to follow of its own accord once it was subjected to a convertibility constraint.[8]

The Currency School's proposals were adopted in the Bank Charter Act of 1844, which divided the Bank of England into two departments, dealing respectively with the Bank's deposit business and the note issue. To put it in modern terms, the Act left the former to act as if it were simply a large deposit taking commercial bank, or so it was envisaged, but transformed the latter into a quasi-currency-board whose reserve asset was gold bullion.[9] The issue department was permitted a fixed fiduciary issue, over and above which the volume of notes in circulation were to move one for one with the Bank's holdings of gold and silver bullion. And the 1844 Act (and parallel 1845 legislation dealing with Scotland) also imposed restrictions on commercial banks to ensure that the Bank of England became effectively the sole source of notes for the entire economy. The proponents of these measures identified currency with money, and argued that under them, any incipient external drain of specie would automatically lead to an immediate but also incipient domestic monetary contraction. This was expected to be sufficient to correct the balance of payments with domestic repercussions so mild as to eliminate the prospect of an internal drain that could turn into a banking system crisis. It was, in short, the Act's aim to create domestic monetary stability by making paper currency respond to the balance of payments just as a pure specie currency would have done.

In the Banking School's view, on the other hand, deposits as well as currency were money. 'Whatever influence may be ascribed to bank notes, whether on prices, or on the rate of interest, or on the state of trade, cannot be denied to cheques or to the substratum, deposits payable on demand' (Tooke 1844, p. 25). Furthermore, under the proposed system, and given the way in which the monetary system was evolving towards using deposits rather than bank notes as a means of exchange, particularly in transactions among businesses, the Banking School argued that any demand for gold for export in response to an external drain 'would almost exclusively fall upon the deposit department' (1844, p. 107) and not on the issue department of the Bank. The deposit department's access to gold would, however, be limited by its own holdings of notes, and its capacity to avoid provoking an internal drain would be severely limited, as would its ability to act as a lender of last resort, should such a drain culminate in a financial panic. And if the drain became serious enough, and continued to fall on the deposit department, the latter might even have to suspend payment while the issue department still had substantial quantities of gold on hand: 'A most absurd, however disastrous a state of things. But it would be too disastrous, and too absurd to be allowed to take its course' (Tooke, 1844, p. 109).

Bagehot's principles

Tooke and his associates were largely proven right on this matter by subsequent events. In 1847, 1857 and 1865, financial crises had to be met by setting aside temporarily the 1844 Act's pro-

visions in order to prevent a cessation of payments by the deposit department, and from this experience there developed an understanding that this would always be done if necessary. In effect, under the Act as it actually operated, the Bank of England's issue department became a currency board whose rules were to be suspended so that its reserves became available to the deposit department whenever a discretionary response to incipient domestic financial crisis was required, a state of affairs implying that, behind the Bank, there stood a further guarantor of monetary stability, namely the government. Once this was understood in financial markets, the need actually to suspend the Act in the face of incipient financial crises disappeared. That is perhaps why, in 1873, Walter Bagehot could refer to the 1844 Act as a 'minor matter in the money market' in the course of setting out what is still recognised as the classic exposition of the principles which should underlie the Bank of England's response to internal drains against the background of a gold-standard rule.[10]

These principles involved the Bank always being prepared to lend freely to otherwise solvent domestic institutions when an external drain threatened to create an internal panic.

> ...periods of internal panic and external demand for bullion commonly occur together. The foreign drain empties the Bank till, and that emptiness, and the resulting rise in the rate of discount, tend to frighten the market. The holders of the reserve have, therefore, to treat two opposite maladies at once - one requiring stringent remedies, and especially a rapid rise in the rate of interest; and the other, an alleviative treatment with large and ready loans (Bagehot 1873, p. 27).

The high interest rate involved in such an operation would attract a short-term capital inflow that would temporarily stabilise the balance of payments, and in the longer run it would also induce the domestic contraction required to eliminate the underlying trade deficit.

In the last quarter of the 19th century, the Bank of England itself finally came to acknowledge, albeit grudgingly, its status as a central bank and began to act in accordance with these principles. The crisis of 1865 proved to be the last one in British monetary history marked by serious bank failures not associated with fraud, and the Bank's handling of the Baring crisis of 1890 cemented, once and for all, its reputation as a reliable backstop to the financial system.[11] It became something of a model to be emulated when other central banks were created - notably the Reichsbank in 1876, and the Federal Reserve system in 1913, though neither of these institutions was burdened with the Currency Board style arrangement that had been the centrepiece of the British 1844 Act.

3. Neoclassical economics and Bagehot's principles

The twenty-five years or so that preceded the outbreak of the First World War were the heyday of Bagehot's principles. Monetary policy in those years was very much a matter of discretion in the short-run, constrained by a firm long-term commitment to a gold-standard rule. Even before these principles were firmly in place, however, changes in monetary economics were getting under way that would, in due course, undermine their intellectual authority. If the story of the development of Classical monetary economics after 1797 is one of economic theory catching up with institutional facts, then that of the evolution of Neoclassical monetary economics after 1863 is one of analysis running ahead of those facts.

Theoretical advances and empirical experience

These changes in monetary economics included, first of all, the transformation of the micro-foundations upon which monetary economists could build, as the cost-of-production theory of value began to give way to marginal utility theory, and to a much more refined version of the supply and demand analysis which had always co-existed uneasily with the cost-of-production theory in Classical economics. And the creation of usable price-indices, not to mention the evolution of theories of the 'credit cycle' into explanations of a 'business cycle' that included fluctuations in real variables were also critically important. These developments took place at more or less the same time as, and partly in response to, two external shocks to the world's monetary system.

First came the gold discoveries of 1849-51, whose major impact on the cost of production of gold had a surprisingly (to contemporary observers) muted effect on the price level of Britain. The explanation of this lay in the fact that Britain at that time was essentially unique in being on a *de jure* gold standard in what was a *de facto* bimetallic international monetary system.[12] The system's anchor was provided by France, where the relative mint price of the two metals had been legally fixed at 15.5 to one in 1803. The world market prices of the metals had fluctuated thereafter within a plus or minus two per cent range of this ratio and would do so until the early 1870s, so that, in effect, a fixed exchange rate was in place between gold and silver standard countries, notably Britain and India, over this entire period. The 1840s had seen downward pressure on silver's relative price, and the French circulation at that time was dominated by that metal. In the 1850s, therefore, the shock imparted by the gold discoveries was absorbed by the displacement of silver by gold from this circulation, and by its subsequent export to India and China. The mechanisms at work here provided what contemporary commentators called a 'parachute' that greatly mitigated the tendency of the value of gold to fall.[13]

A second important shock began in the early 1870s with the adoption of the gold standard by the newly created German Empire, and the passage of the 1873 Specie Resumption Act which mandated a return to full gold (but not silver) convertibility in the United States in 1879. Between them, these events put sufficient pressure on the 15.5 to one ratio that France and the countries of the Latin Monetary Union whose monetary systems were linked to hers would soon close their mints to silver. There followed two decades of slow deflation in gold standard countries, accompanied by widespread political pressure for a return to bimetallism as a means of stabilizing prices. This pressure abated after the mid 1890s, not because the bimetallists lost the intellectual debate, but because the discovery of the cyanide process made the exploitation of South African gold deposits economically viable, so that world gold production finally moved a little ahead of the rate of growth in the monetary demand for the metal.

Though some economists, for example those defenders of the gold standard Robert Giffen in Britain and J. Laurence Laughlin in the United States, continued to deploy the cost of production theory of value (even into the 20th century in the case of the latter), the fact that supply and demand mechanisms obviously underlay the parachute effects of the1850s, and could explain the evolution of prices in gold standard countries after 1870 were widely recognised. All in all, then, it is hardly surprising that the most creative monetary economists of this period, who were also leading exponents of marginalist microeconomics, ceased to think of the value of gold as some natural phenomenon that could exogenously constrain the monetary system, began instead to treat it as a market price determined like any other by supply and demand,

and, as a corollary, came to analyse the gold standard as one among a number of possible monetary systems, each to be assessed on its own merits.

Alfred Marshall began to work on monetary questions in the early 1870s, though he did not begin to publish on these matters until the late 1880s. In his view, gold's monetary use dominated the demand for it, and was, moreover, subject to major disturbances emanating from developments in banking. In analysing monetary systems based on convertibility into the precious metals, therefore, he concluded that, rather than the stability of the monetary system being guaranteed by some exogenously given natural value of gold (and/or silver), the configuration of that system was itself the major factor determining gold's market price:

> ...as things are, gold and silver have no natural value. They are so durable that the year's supply is never more than a small part of the total stock, and therefore their values do not conform closely to their costs of production. And, insofar as their values are regulated by the relations between the demands for them and the existing stock of them, their value is artificial, because the demand for them as currency is artificial (1887, p. 200).

It would not be until the 1920s that the majority of economists would come to regard the gold standard not as a uniquely effective monetary rule that could govern the workings of the monetary system, but as a monetary institution that had to managed like any other, but this profoundly revolutionary way of looking at things is quite explicit in these words of Marshall.

The full significance of the monetary experience of the second half of the 19th century as a refutation of the idea that gold provided a 'natural' foundation for a rule based monetary system could not have been appreciated without major advances in empirical analysis. It has already been noted that during the Bullionist Controversy the main test for price inflation had been the behaviour of the price of gold bullion; but after the gold discoveries of 1849-51, the key issue was what was happening to the price of goods in general in terms of a currency whose gold price remained rigidly and credibly fixed. A useable price index was needed to cope with this question, and Jevons (1863) provided one. Once the idea of using a price index to answer questions about the behaviour of gold's price relative to that of goods in general became current, the possibility that the maintenance of the gold standard might actually provoke fluctuations in general prices could hardly be ignored, nor could the notion that there might exist an inherent conflict between maintaining internal price level stability and a fixed exchange rate against gold for the national currency.

Important advances also occurred at this time in cycle theory. Once again, the study of Jevons (1863) was a pioneering influence. In order to get to grips with the long-run price level consequences of the gold discoveries of 1849-51, he had been forced to devise means of abstracting from shorter-term cyclical fluctuations. The idea that the trend and cyclical components of a variable's behaviour could and should be distinguished from one another is systematically deployed in his work, and one of the by-products of his efforts was the notion that the cycle was a real and not just a financial phenomenon. Jevons himself did little with this point in 1863, though some of his colleagues in the Manchester Statistical Society, notably John Mills of Ashton-under-Lyme studied it much more closely.[15]

Marshall and his wife Mary Paley Marshall also paid serious attention to real aspects of the cycle in their *Economics of Industry* (1879). Having described the cycle very much along the same lines as those followed by Mill, to which reference was made earlier, and coming to the downswing, the Marshalls pointed out that 'The connexion between a fall of prices and a

suspension of industry requires to be further worked out', (1879, p. 155). They then proceeded to do so, along the following lines.

> It. . . very seldom happens. . . . that the expenses which a manufacturer has to pay fall as much in proportion as the price which he gets for his goods. For when prices are rising, the rise in the price of the finished commodity is generally more rapid than in the price of the raw material, always more rapid than in the price of labour; and when prices are falling, the fall in the price of the finished commodity is generally more rapid than that in the price of the raw material, always more rapid than that in the price of labour (1879, p. 156).

From this time onwards, cyclical unemployment, created by money wage stickiness, became a regular topic for discussion in the British Neoclassical literature. And, in 1887, Alfred Marshall, writing alone, would add to this the notion that the tendency of the banking system to adjust nominal interest rates only rather slowly in response to cyclical movements would also interact with price level flexibility to induce perverse and destabilising fluctuations in real interest rates.[16]

Rules and Discretion in Neoclassical Economics

Bagehot's principles did not appertain to what we would nowadays call counter-cyclical policy. Their aims were to maintain gold convertibility and prevent the failure of solvent financial institutions for want of liquidity. Neoclassical monetary economics opened up to consideration a much wider and more ambitious range of policy goals. Not only did it suggest that the maintenance of price level stability and gold convertibility might conflict, but it systematically associated the cycle's downswing with contractions in real output and employment that the high nominal interest rates dictated by the application of Bagehot's principles at its upper turning point could only exacerbate. Hence, Classical analysis of how monetary policy ought to respond to banking crises when they threatened to occur at that upper turning point began to evolve into the more general Neoclassical treatment of how to stabilize the cycle itself.

Given that they had explicitly repudiated the idea that gold constituted a uniquely 'natural' standard of value, it would have been easy enough, logically speaking, for the first generation of Neoclassical economists to abandon the Classical economists' concern with monetary rules altogether, and to erect a case for discretionary counter-cyclical monetary policy on the new theoretical and empirical foundations they were creating, but it was not until the 1920s that policy implications along these lines became widely espoused. Before World War 1, Neoclassical economists still tended to support monetary rules, albeit not usually those of the gold standard.

Thus, Marshall (1887), finding both the gold standard rule and orthodox bimetallism unsatisfactory as means of achieving secular price level stability, advocated symmetallism - a rule that would have fixed the price of money in terms of a weighted basket of gold and silver - as a superior alternative. As to stabilizing the cycle, he looked not to discretionary monetary policy, but to widespread indexation of both credit and labour market contracts in order to eliminate the baleful real consequences of price level fluctuations. Under indexation,

> The borrower would not be at one time impatient to start ill-considered enterprises in order to gain by the expected rise in general prices, and at another afraid of borrowing for legiti-

> mate business for fear of being caught by a general fall in prices . . . Salaries and wages . . .could be fixed in units [of constant purchasing power], their real value would then no longer fluctuate constantly in the wrong direction (Marshall, 1887, p. 198).

And, of course, if indexation succeeded in stabilising the cycle, it would eliminate banking system crises too.

Marshall's younger American contemporary Irving Fisher would soon go one step further in advocating indexation. In (1911) he began to suggest indexing money itself, by creating what he later called a 'compensated dollar'. The essential property of his scheme was to maintain the convertibility of money on demand into gold, but at a price that would be regularly adjusted to offset fluctuations in gold's relative price in terms of goods as measured by a suitable index number which would be regularly updated and published.[17] Fisher's proposal thus involved substituting a price-level stability rule for a fixed price of gold as an anchor for the monetary system, and by 1921 he was actively engaged in trying, albeit unsuccessfully, to get the United States Congress to embody that rule in legislation. As with Marshall's proposal, the elimination of banking system crises would arise as a by-product of Fisher's scheme.

There was of course, potential for conflict between the domestic pursuit of price stability and the stability of the exchange rate under either set of proposals. Fisher and Marshall both recognised this, and both explicitly gave pride of place to the domestic goal. But Marshall noted the possibility of symmetallism replacing the gold standard as the basis not just of the domestic monetary system but of the international monetary system as well, and so too did Fisher with regard to the compensated dollar. These Neoclassical economists thus held radically different economic theories to those of their Classical predecessors, not to mention different views about the proper goals of monetary policy, but they retained a strong preference for attaining their goals by subjecting monetary policy to legislated rules of one sort or another, and to doing so on an international level if at all possible. There was no idea in Neoclassical theory, however, that could give authority to any particular policy rule in the way that the Classical concept of a natural price, determined by cost of production, had provided an intellectual underpinning for the gold standard. That is why these two leading Neoclassical economists could each go his own way in arguing for what nowadays look like rather eccentric schemes.

It was left to the most innovative of all the pioneers of Neoclassical monetary theory, the Swedish economist Knut Wicksell, to devise as early as 1898 a monetary policy regime that was quite divorced from any kind of commodity convertibility. Wicksell revived the style of short-run monetary analysis that Thornton had deployed in (1802), without being aware of Thornton's own contribution, but though to this extent his work had deep Classical roots, he explicitly rejected the cost-of-production theory of the value of gold. Wicksell concluded that, as a positive matter, under the gold standard, drains from the reserves of central banks affected the economy by prompting them to change their interest rates; and he went on to propose, as a normative matter, dispensing with inessential gold altogether and relying on the manipulation of short term interest rates to stabilise prices.[18] He also gave high priority to exchange rate stability, however, so it was integral to his proposal that interest rate movements be internationally co-ordinated.

> The question . . .arises whether the object in view could not be obtained far more simply, and far more securely through the monetary institutions of the various countries agreeing among

> themselves to undertake directly that alteration in their rates of interest which is necessary and which alone is effective (1898, pp. 188-89).

Even so, although Wicksell was just as firm a supporter of price stability as any Classical economist had been, and argued the virtues of international monetary stability too, he differed radically from them in suggesting that these goals be attained through discretionary policy. He advocated what Lars Jonung (1979) has accurately termed a price stability *norm*, rather than a legislated rule.

Wicksell was concerned only with influencing *secular* price level movements, but it was not long before others were deploying similar ideas in a *cyclical* context. In 1913, for example, the British economist Ralph Hawtrey diagnosed the cycle as arising from monetary instability - the 'inherent instability of credit' as he usually termed it. In and of itself this idea had a long pedigree in Classical economics, not least as it had been expounded by Bagehot. Hawtrey, however, developed the very un-Bagehotian suggestion that central banks might try to use their control over short-term interest rates to iron out cyclical fluctuations; though like Wicksell, with whose work at that time he was nevertheless unfamiliar, he envisaged such efforts being co-ordinated internationally so that exchange rate stability would be preserved. As far as upswings were concerned, 'If the great central banks of the world. . . could agree together to draw the reins a little tighter at times when an expansion of trade is in progress, they might prevent the inflation of credit money reaching the dangerous point.'; and, as to downswings, 'when the supply of credit money is being diminished the banks ought to be in a position to release a sufficient amount of cash to provide for the payment of wages bills...'

Hawtrey qualified this advocacy of discretionary counter-cyclical policy by suggesting that 'no possible precision of judgement would enable the banks to counteract fluctuations altogether'; and he also noted that '...however efficacious such a method might be, it could hardly be carried into operation so long as the banking system of the United States labours under its existing defects [i.e. the absence of a central bank]' (p. 263).[19] He furthermore conceded that 'the possibility of preventing fluctuations by means of banking control is at the best highly conjectural' (p. 264). Even so, and quite remarkable for someone writing before the First World War, Hawtrey (1913, p. 265) also pointed out that an individual country might put itself in a position to pursue such a policy on its own account by abandoning the gold standard and adopting a flexible exchange rate, though he stopped far short of advocating so radical a step.

It is hard to believe that Neoclassical monetary ideas would have had any immediate influence on either monetary policy or institutions, had it not been for the Great War. The twenty years that preceded its outbreak were, by and large, stable and prosperous, and during that time, it was, after all, Bagehot's principles that guided the Bank of England, the institution that lay at the heart of the international gold standard. The United States experienced a serious financial crisis in 1907, an event which, incidentally, had profoundly influenced Hawtrey's Good and Bad Trade, and in its wake finally acquired a central bank in 1913. The Federal Reserve system's main task as envisaged by its founders, was, however, not to engage in stabilization policy along Hawtreyan lines, but to provide lender of last resort facilities to a banking system that had shown itself still prone to the style of crisis that had been eliminated from Britain four decades or so earlier by the application of Bagehot's principles.

The interwar years

But the War and its aftermath decisively shocked monetary institutions as well as informed opinion about what could and should be expected of them. The War's losers were burdened with heavy reparations obligations by the Versailles Treaty, and a series of hyper-inflations destroyed what was left of their monetary systems. Most European countries had suspended their adherence to gold for the War's duration and inflation rates had varied markedly among them. The major post-war problem for European countries, therefore, was whether, and if so how, to restore the gold standard. It was in this context that themes long present in the Neoclassical literature finally took on practical importance.

The Genoa Resolutions of 1922 essentially proposed to re-establish the international gold standard, not as a means of constraining domestic policies, but as a means of co-ordinating stabilisation policies among countries, very much along the lines that their principal architect, Ralph Hawtrey, had proposed in (1913). And Keynes' (1923) *Tract on Monetary Reform* should be read in part as a critique of those resolutions, one that emphasised the potential for conflict between external and internal stability that became evident when their likely workings were viewed from the perspective of individual national governments. Keynes, as is well known, gave pride of place to domestic goals, and advocated a degree of exchange rate flexibility, at least between sterling and the dollar. Here he was developing a theme which had first been sounded by Marshall in 1887.

But none of these proposals came to anything. Monetary policy in Europe amounted in fact to a series of unco-ordinated national initiatives. As to the United States, they had remained on the gold standard during their relatively brief engagement in the War, and at its end, their holdings of gold were sufficiently large that international considerations exerted essentially no constraint on domestic monetary policy. After the sharp inflation and recession that came immediately after the war, and the existence of remaining pockets of economic distress notwithstanding, the United States returned to prosperity for the rest of the decade, in stark contrast to Britain and other European countries where stagnation and large scale unemployment would be the dominant features of economic life.[20]

The policy debate in the United States nevertheless also saw a continued development of themes that originated in the pre-war literature. Throughout the 1920s, for example, Irving Fisher actively promoted the imposition of a legal obligation upon the Federal Reserve system to pursue price level stability, albeit without success, and this cause would be kept alive at the University of Chicago in the 1930s, mainly by Henry Simons (see Simons *et. al.*, 1933 and Simons. 1936). At the other extreme, a strong element of the real bills doctrine informed economic thinking at the Federal Reserve Board, while, in the 1920s, a middle ground, strongly influenced by Hawtrey, advocated the cautious deployment of discretionary stabilization policy. Here the views of Hawtrey's great admirer Allyn Young of Harvard University are of particular interest, not least because he was an occasional advisor to Governor Benjamin Strong of the Federal Reserve Bank of New York.

In 1927, for example, Young urged, optimistically as things would turn out, that 'it is quite generally held that [central banks'] policies should be determined with primary reference to the securing of the maximum practicable degree of business stability' (p.80); and as part of an explicit defence of the superiority of discretionary policy to any 'simple set of rules', he also argued that 'what the Federal Reserve banks need most. . .is not more power or less power, or

doctrinaire formulations of what their policy ought to be, but merely an opportunity to develop a sound tradition, and to establish it firmly' (p. 82).[21] As it was, however, when the Depression began, the New York Bank, which, in Jacob Viner's words,

> made more effort than any other central banking institution to develop a program and a technique of credit control with a view to stabilization, . . .at critical moments found itself at cross purposes with, and inhibited from action by, a Federal Reserve Board with an attitude towards its functions resembling with almost miraculous closeness that of the Bank of England during its worst period (1932, p. 28).

Or, to put it in another way, the Federal Reserve system, which had been established to apply Bagehot's principles to counter any internal drain of reserves that might arise, which some had wanted to subject to a price stability rule, which had been urged by others to engage in activist stabilization policies, utterly failed to do any of these things. Instead, when its first major test arose in 1929, the system succumbed to the real bills doctrine, and made no serious effort to operate as a lender of last resort. Nor, as the Great Depression gathered momentum in the wake of the banking system crises that the Federal reserve system had permitted to occur, did it make any serious efforts to implement expansionary counter-cyclical policy along Neoclassical lines.[22]

4. Some post World War 2 developments

The Depression, as we all know, put an end to efforts to restore the gold standard as the rule for monetary policy. Once Britain, which had returned to gold in 1925, and a little later the United States which had never left it, decided to rid themselves of the constraints it imposed, they were free to undertake expansionary policies, both monetary and fiscal, at their own discretion. Undertake them they did, and they quickly began to raise the level of economic activity, long before the onset of World War 2 completed the task of restoring it to a high level. And on the theoretical front, Keynes' (1936) *General Theory* was widely read as providing a foundation for the discretionary fiscal policies that had come more and more into favour in the years preceding its publication. After World War 2, most advanced economies relied primarily on such policies to achieve their domestic goals.

The Bretton Woods system and after

The monetary authorities and governments of many of those same economies also tried to have their monetary cake and eat it too by adopting adjustable-peg exchange rate mechanisms. Under the Bretton Woods system, monetary policy was to be tied to a fixed exchange rate, and to that extent be rule guided, but only so long as this did not interfere with the pursuit of domestic employment goals. If it did, then the rule was to be changed to create room for monetary policy to accommodate the discretionary fiscal measures needed to hit the latter. This system came under severe strain in the 1960s, and collapsed at the beginning of the 1970s.

The factors that brought the Bretton Woods System down, and continued to plague the international monetary system in the 1990s, are the tendency, recognised as we have seen for two hundred years now, of external and internal monetary problems to arise together, their need for opposite remedies, and the reluctance of so many politicians and central bankers to face

these facts of economic life, and make a choice between the systematic pursuit of *either* domestic or exchange rate stability. The success of Bagehot's principles in the late 19th and early 20th centuries long ago demonstrated that it is possible to enshrine external stability in a legislated policy rule, and to make it stick too. We are also thoroughly aware, however, as Bagehot and most of his contemporaries were not, of the insights developed from the 1880s onwards that a constant exchange rate may conflict with domestic monetary stability. We also learned from the inter-war years that the price of maintaining the exchange rate in times of external financial difficulties may be not just high domestic interest rates and constraints on fiscal policy, but depressed domestic income and employment as well, not to mention the political instability that sometimes goes with them, a lesson that the recent experience of Argentina has driven home once again.[23] That is of course why the Bretton Woods system sought to make room for compromises here, and why intermediate exchange rate regimes involving 'target zones', 'crawling pegs' and so on still have their advocates.

The development of Monetarist analysis of endogenous expectations, the subsequent refinement of this idea into the Rational Expectations Hypothesis, and its deployment in the analysis of policy credibility, were in part a response to the macroeconomic instability that followed the collapse of Bretton Woods. These theoretical ideas yield two implications: the first, now widely accepted, is that a policy regime must be credible among the public at large if it is to be durable; and the second, less widely discussed, is that such credibility can only be created by the authorities choosing a clear goal and then systematically and successfully pursuing it. Viewed in this light, the Bretton Woods system embodied a rule for the exchange rate that the authorities would adhere to for just so long as they found it expedient to do so: small wonder that the system had difficulty in achieving credibility, and collapsed in the early 1970s having been fully operational for only a little more than a decade.

Between 1821 and 1914, a flexible exchange rate regime, then known as inconvertible paper money, barely registered as a practical peace-time policy option. It was not so much chosen by, as forced upon, policy makers in the 1930s and again in the 1970s, because at those times the domestic costs, political as well as economic, of maintaining pegged rates were just too high. Nowadays we know that adherence to such an arrangement makes an external financial crises impossible, and permits the authorities to concentrate single-mindedly on first avoiding, and where that fails, coping with, domestic instability and its real consequences. But we also know, as a consequence of the New-classical literature on policy credibility, that a flexible exchange rate does not, in and of itself, constitute a monetary policy regime. If the authorities choose not to commit themselves to an exchange rate rule, then they must set another goal and make it credible. The old discussion of rules and discretion in monetary policy has therefore re-emerged in flexible rate countries, with the rule of choice increasingly being some sort of medium term inflation target (more or less formal and legally binding, depending upon the example) with the authorities being left with a rather large margin for discretionary manouevre within the constraints it imposes.

5. Concluding comment

Perhaps it is not too optimistic to suggest that now, a century or more since Classical and Neoclassical theory so thoroughly revealed them, we have finally learned that the conflict between dealing with the external and the internal aspects of financial instability is best

resolved by giving pride of place to just one of them, and anchoring its pursuit to a rule. To be sure, the fact that monetary policy can only pursue one goal at a time does not in strict logic imply that the policy choice must necessarily lie between the extremes of exchange rate and price level stability. One can, for example, conceive of making the stability of an index number constructed as a weighted average of the exchange rate and some measure of domestic stability the target of policy. The difficulty with such schemes, however, is that they are hard for the public to understand and monitor, and give the authorities scope to indulge in arbitrary changes in the weights assigned to the components of the average. Thus it is difficult to establish credibility for them, and it is the requirement that the ultimate anchor for a monetary policy regime must be simple enough to be generally credible that pushes the policy choice towards the extremes.

Even here, however, there is scope for a limited amount of compromise. There are, for example, obvious parallels between the mix of long-run rule and short-run discretion implicit in modern inflation targeting regimes, and that which existed under the Bagehotian rules of the gold standard game, and also exist nowadays under quasi-currency board arrangements. The defining characteristic of either regime lies not in ignoring all economic variables save one at each and every moment, but in making it clear that, in the event of any conflicts arising, the behaviour of that one variable will be given unequivocal price of place. One great advantage of setting a rule for domestic price level behaviour and hence none for the exchange rate, therefore, is that this permits subsidiary goals, not just for stability of the financial sector, but also for the maintenance of high income and employment too, to receive at least limited attention. This is no minor matter in a world where we expect policy makers to be accountable to national electorates. The great advantage of being rigorously bound by an exchange rate constraint, on the other hand, is that it ultimately prevents those same policy makers, not to mention the electorates they serve, being taken in by whatever version of the real bills doctrine happens to be current, and doing more harm than good to the domestic economy as a result. It is unlikely that one or the other of these alternative monetary orders will turn out always and everywhere to have the advantage, regardless of local political and economic circumstances.

ENDNOTES

1. Bank of Montreal Professor, University of Western Ontario, London, Ont., Canada, N6A 5C2. E-mail: laidler@uwo.ca. This paper was presented at the History of Economic Thought Conference held at Manchester Metropolitan University in September 2001. It also formed the basis for seminars given at the Bank of Italy and the University of Brescia in May 2001, having evolved from a lecture given at the University of Frankfurt on May 22, 2000. An earlier version, entitled 'Remedies for Financial Crises in the Classical and Neoclassical Literature', mainly written during the author's tenure as Stiftungsprofessur Deutsche Bundesbank at die Freie Universität Berlin, and was circulated from that institution as Discussion Paper #2000/13. The paper draws heavily on earlier works of the author (Laidler 1991, 1999 and 2000) where much more extensive documentation for the positions it takes than can be incorporated here is to be found. This version owes much to conversations and/or correspondence with Charles Goodhart, Filippo Cesarano, Andreas Hauskrecht, Maria Cristina Marcuzzo, Michael Parkin, Franco Spinelli, and an anonymous referee, who nevertheless bear no responsibility for its shortcomings.

2. Michael Bordo (1998) gives an account of these crises. The present paper complements his in paying attention to the economic analysis that these crises provoked, rather than to the historical record itself. Note that Thomas Humphrey (1999) has also recently written of the relevance of this earlier literature to the problems faced by contemporary policy-makers.

3. Even during the years 1797-1821, when the requirement that the Bank of England convert its notes on demand into gold bullion was suspended as a result of monetary instability created by the Revolutionary and Napoleonic Wars and their aftermath, the commonly applied test of the appropriateness of that institution's activities was the behaviour of bullion's market price. It should also be noted that until the 1870s, the international, as opposed to the British, monetary system was overall bimetallic. For a recent and exceptionally lucid account of the theory and history of bimetallism, see Angela Redish (2000).

4. Schemes for 'tabular standards of value' based on primitive price indices were discussed from time to time from the late 18th century onwards, but made no impact on the mainstream of Classical economics. On this matter, see Fetter (1965, pp. 138-9).

5. There were, of course, dissenters from this conventional wisdom, notably Thomas Attwood and the Birmingham School. Members of this group proposed and defended a number of alternative monetary policy goals over the years, including full employment on some occasions. On this, see Laidler (2000).

6. Rather oddly, Mill did not refer explicitly to this point in the passage from which I have just quoted, even though it was a commonplace of the literature at the time when he wrote.

7. Ricardo was, that is to say, an exponent of what Viner (1937) would refer to as an 'extreme' bullionist position. Viner suggests that only John Wheatley, among other bullionists, also took this position, but such was Ricardo's later stature that his opinions on this question continued to be influential throughout the 19th century, and indeed into the 20th. Morris Perlman (1986) has argued that the disagreement between Ricardo and Thornton about the causes of balance of payments deficits could not be properly addressed given the state of international trade theory at the time. He suggests that Ricardo later softened his position on these questions as a result of his development of the theory of comparative advantage.

8. On the influence of Thornton on Banking School thought, see Neil Skaggs (1995). Note that, because of the particularly strong opposition mounted by some to the suppression of the country and Scottish note issues that Lawrence White (1984) has suggested that it is helpful to refer to a 'free banking school' separate and distinct from the 'Banking School'. On this, see also Anna J. Schwartz (1987). Walter Eltis (2001) provides a stimulating account of the contributions of Samuel Jones Loyd, later Lord Overstone, to the Currency School position, arguing convincingly that he was its leading architect. Eltis stresses Overstone's emphasis on the importance of monetary policy being rule-guided.

9. The Act permitted limited holdings of silver bullion, to facilitate transactions with silver standard countries. Some readers will note that Argentina's recently abandoned quasi-currency board bore a notable resemblance to the regime established in Britain in 1844.

10. As Charles Goodhart (1999) has correctly noted, Bagehot's principles were anticipated in all their essentials by Thornton (1802). He suggests that Bagehot's greater emphasis on the role of high interest rates probably reflects the fact that the usury laws which so concerned Thornton had been repealed in the 1830s. Goodhart is, however, sceptical that Bagehot's recommended 'high' interest rate should be interpreted as a 'penalty' rate, ie. a rate significantly above market levels, as later accounts of his principles have sometimes had it. He also emphasises the importance of the government's fiscal powers in underpinning any central bank's capacity to act as a lender of last resort.

11. Presnell (1968) remains the definitive treatment of this crisis. In his view, the Bank of England's

actions here were closer to successfully muddling through the crisis than to the decisive intervention that might, in the abstract, be expected from a confidently Bagehotian central bank. In organising, in consultation with the government of the day, a rescue of Barings by a group of other financial institutions, the Bank also went far beyond simply lending freely to sound but illiquid institutions. Indeed there are similarities between the Baring Crisis and the 1998 rescue of Long Term Capital Management organised by the Federal Reserve Bank of New York.

12. The definitive contemporary studies of these events are those of John Cairnes (1859) and William Stanley Jevons (1863).

13. Jevons (1863) attributes the analysis of the 'parachute' effect to the French economist Michel Chevalier. He gives no precise reference, but see Chevalier (1859).

14. It should also be noted explicitly, though, that the fall in the value of gold that Jevons discovered was a good deal less 'serious' than the title of his 1863 pamphlet implied. Indeed, as he himself conceded, once productivity changes were accounted for, it was far from clear that the commodity price increases he uncovered had in fact had any impact at all on what we would nowadays call the 'cost of living'.

15. See Mills (1867). Jevons himself would later study the cycle in considerable detail, albeit within the framework of his still famous, often but unjustly denigrated 'sunspot' theory. Relevant papers are to be found in Jevons (1884).

16. Marshall did indeed deploy what we would now call the 'Fisher effect' in the course of this analysis, and the 'real' - 'nominal' vocabulary was his. Fisher (1896) would in due course acknowledge this priority. Fisher's contributions here involved distinguishing carefully between actual and expected inflation when analyzing this question, and putting it on a sound empirical basis too. Marshall in his turn was aware of and acknowledged the importance of Fisher's efforts.

17. In a footnote, Marshall (1887) broached the possibility of a scheme very like Fisher's, and of the activist stabilization of a fiat money system by way of interest rate policy, rejecting both as impractical. It is also worth recording the anticipation of Fisher by Aneurin Williams (1892).

18. Once again, Marshall (1887) had canvassed this idea, without endorsing it, in a footnote.

19. After the first world war, the resolutions adopted at the Genoa Conference of 1922 envisaged an international monetary system based on gold, which would nevertheless be stabilised by the co-ordinated policies of national central banks. In effect the gold standard was to be a particular form of managed international currency. Hawtrey was the principal architect of these resolutions, which came to nothing.

20. On this, and its influence on American economic thought in the 1920s, see Laidler (1999, ch.8).

21. Young's reputation as a monetary economist, and our understanding of his influence in the 1920s is undergoing something of a renaissance at the moment. Mehrling (1997) contains an important study of Young's monetary economics. See also Mehrling and Sandilands (eds.) (1999), particularly Ch. 38. for further, and only recently unearthed evidence of Young's views on the role of the monetary system in the business cycle.

22. Though Friedman and Schwartz (1963) is the definitive modern source for this interpretation of the role of the Fed. in the Great contraction, it was anticipated to s significant extent by Currie's (1934a and b) contemporary analysis. Currie was, however very much in a minority here. Frank Steindl (1995) provides an extremely interesting account of the relationships among contemporary accounts of the Contraction and Friedman and Schwartz's later discussion.

23. Here that the growth in importance of the international capital market is particularly important. It is much more problematic now to deal with 'temporary' external drains, driven by shocks to trade, under fixed exchange rates simply by allowing reserves to run down for a year or two, as Thornton, the Banking School, and indeed the architects of Bretton Woods, envisaged.

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