

Central bank as the lender of last resort - trendy or passe*

by

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The Early Theory of Central Banking

In 1797, the war was not going well for the opponents of Revolutionary France, and in February of that year a small French force landed on the coast of Wales. Though this event was of no military significance, since the force in question was soon rounded up, it precipitated a run on the British banking system that was only halted by the suspension of the Bank of England's obligation to convert its notes on demand into gold bullion. This "temporary" suspension was to remain in place until 1821, and provided the backdrop to the so-called "Bullionist controversies" which laid the foundations of the modern theory of central banking. It was at the very outset of those controversies that Sir Francis Baring (1797) referred to the Bank of England as the *dernier resort* of the banking system, and Henry Thornton (1797, 1802) developed some of the implications of this insight for the conduct of policy.

The idea of the Bank of England as the "lender of last resort", and what that did and did not imply about its directors' responsibilities to their shareholders on the one hand and the financial system in general on the other, thereafter remained at the centre of British debates about central banking, and took pride of place in Walter Bagehot's codification. In his still celebrated book *Lombard Street: a Description of the Money Market* (1873), of what Frank Fetter would later (1964) call *British Monetary Orthodoxy*.¹ The principles set out in *Lombard Street* governed the conduct of the Bank of England until the outbreak of World War 1, and exercised a profound influence on the development of central banking elsewhere - for example in the German Empire with respect to the configuration of the *Reichsbank*, and in the United States with respect to that of the Federal Reserve system. And as late as 1932, Ralph Hawtrey was still able to assert, on the very first page of his (1932) essay on "The Art of Central Banking", that "The Central Bank is the *lender of last resort*. That is the true source of its responsibility for the currency" (Hawtrey 1932, p. 116, italics in original)

Evidently, for well over a century the concept of the lender of last resort lay at the heart of discussions of central banking, and it is something of a paradox that, nowadays, when monetary measures have once again taken pride of place in the macroeconomic sphere, it is barely mentioned. Michael Woodford's (2003) *Interest and Prices: Foundations of a Theory of Monetary Policy* provides a definitive exposition of the so-called *New Neoclassical synthesis* in

¹In addition to Fetter's classic work, the reader's attention is drawn to discussions of the lender of last resort by Charles Goodhart (1985) and Thomas Humphrey (1985) as well as to an important recently published collection of essays on the topic edited by Goodhart and Illing (2002)

monetary economics that to a greater or lesser extent informs the conduct of virtually all modern central banks, but the phrase “lender of last resort” does not even appear in its index. Clearly, then, there have been major changes in the theory of central banking in recent years. In this brief essay, I shall argue that, although some of these reflect institutional developments that make aspects of the lender of last resort role less important than they once were, some of them reflect the disappearance from modern monetary economics of insights developed in an earlier era that has impoverished our understanding of some important policy issues.

Bagehot’s Version of the Lender of Last Resort Doctrine

It is convenient to begin with Bagehot, whose discussion of these issues is probably the most widely known among modern scholars of central banking, and to note at the outset that though *Lombard Street* is nowadays regarded as the classic exposition of the 19th century theory of central banking, Bagehot himself thought he was writing about a unique institutional arrangement that existed only in Britain. For him, competitive commercial banking, with each bank holding its own reserves of gold, was the “natural system”.² In Britain, however, he thought that particular historical circumstances had led to the imposition of legal restrictions which had in due course made the Bank of England simultaneously the holder of the country’s gold reserves and the emitter of the notes and deposits which, along with gold coin, formed what we would nowadays call the monetary base.

When writing about central banking as a peculiarly British phenomenon, Bagehot took for granted the particular configuration of the Bank of England as laid down in the 1844 Bank Charter Act. Its note issue department operated as what amounted to a currency board whose liabilities had to be backed 100 per cent on the margin by specie, while its banking department emitted deposit liabilities that served as reserves for the rest of the banking system, while holding against them whatever reserves of Bank of England notes its directors thought prudent. Bagehot’s book then offered guidance to the directors of the Bank in the management of those reserves within this very special framework; and his central theme was that the Bank’s monopoly power in the financial system imposed upon those directors a public obligation to act so as to preserve its stability, rather than simply to ensure the soundness and profitability of their own establishment.

²This view of Bagehot’s is often cited with approval by advocates of *free banking*, that is a competitive banking system unsupported by a central bank. Selgin and White (1994) provide an admirable survey of this strand in the literature, whose further discussion is nevertheless beyond the scope of this paper.

Bagehot's conception of what that responsibility involved was somewhat narrower than any modern notion, because his analysis was grounded not only in a particular institutional framework but also in a particular view of monetary economics that he took so much for granted that he barely discussed it. Specifically, for him, a currency convertible on demand into one or other of the precious metals - preferably gold - was the *sine qua non* of the monetary system, and the preservation of that convertibility was the first order of business for the Bank of England. Second, though Bagehot was aware that instability within the financial system seemed to occur on a cyclical pattern, and that it was associated with instability in the economy at large, like most of his contemporaries he lacked a coherent theory of what we would now call the business cycle, so that the idea that the responsibilities of the Bank of England might extend to trying to stabilise such a cycle did not cross his mind.

Only few select features of the cycle figured prominently in Bagehot's analysis. First, he was well aware that at what we would now call its peak, the pressure of domestic demand tended to push the balance of payments into deficit, and hence to deplete the Bank of England's specie reserves. But second, he was aware that the measures required to correct this "external drain" - a contraction in the Bank's loans to the rest of the financial system, and an increase in its discount rate - could give rise to an "internal drain", an increased tendency on the part of the general public to hold Bank of England notes and gold as a precaution against being unable to acquire these when needed. In extreme cases, as he also emphasised, this internal drain could culminate in a financial panic as pressure on particular commercial banks, including some that probably were having genuine problems of solvency, degenerated into a general run on the system. In a panic, not only would fundamentally sound institutions be driven out of business along with those that were truly insolvent, but the ability of the banking system as a whole to provide the financial-intermediation services upon which the smooth functioning of the real economy depended would also be impaired.

Bagehot's principles of central banking were designed not to iron out the business cycle, then, but rather to preserve the convertibility of the currency while ensuring that banking panics did not happen. They laid it down that the Bank of England had the power and therefore the responsibility to do this. It should first of all hold a larger stock of reserves in its banking department than prudent profit maximisation would require, to enable it to ride out temporary shocks to the balance of payments without imposing domestic monetary contraction, and to respond in a measured way to more deep seated external drains so as to give the domestic banking system time to adjust. Second, if an internal drain nevertheless did begin, it should lend

freely to the market in general, and to any otherwise solvent institutions in particular were they in difficulties, albeit at a high, perhaps even penal, rate of interest.³ Finally, the Bank should ensure that the financial system as well as the public at large developed confidence that it would indeed act in this way in any circumstances that required it to do so.

In short, the Bank of England had to recognise that it was the only source from which the British financial system as a whole could obtain new supplies of liquidity when these were in demand, that it was in this sense, the system's "lender of last resort", and that it had to be seen to be have accepted the responsibilities that this entailed. These conditions, according to Bagehot in (1873), would enable gold convertibility to be preserved and debilitating financial panics to be avoided; and with these goals assured, the economy could be more or less allowed to look after itself. The subsequent monetary history of Britain down to 1914, particularly after the Bank of England's successful handling of the Baring crisis of 1890, makes it hard to deny that Bagehot was basically right about all this.

Bagehot was nevertheless wrong about one matter. As well as specific historical and legislative reasons, it has turned out that there were also good economic reasons, having to do with economies of scale in precautionary holdings of liquid assets, why the British financial system had become centred on the Bank of England as the eighteenth and nineteenth centuries had progressed.⁴ As these economic reasons began to be understood, it therefore became apparent that his principles had considerable relevance beyond the confines of the rather special institutional arrangements ruling in Britain, and other countries in due course created their own central banks to apply them to the guidance of their financial systems. What Bagehot had thought of as advice uniquely relevant to Britain acquired quite general significance.

Bagehot's Principles Today

Given the institutional framework that he took for granted, and his monetary theory, it is easy to

³There is some disagreement among scholars about whether Bagehot prescribed a penalty rate of interest or merely a high one in times of financial crisis. Humphrey (1985) favours the former interpretation, and Goodhart (1999) the latter.

⁴The analysis of economies of scale in reserve holdings seems to begin with Edgeworth (1888), and was further developed by Wicksell (1898) However, Thornton (1802) displayed an intuitive grasp of some of the issues involved, as Laidler (2003) has argued, which is perhaps one reason why it is possible later in this paper to pair his contribution with Ralph Hawtrey's much later (1932) discussion of these matters.

see why lender of last resort activities lay at the very heart of Bagehot's conception of the role of a central bank, and it is equally easy to understand why they should no longer occupy a central place in modern views of these issues. To begin with, we nowadays understand a great deal more than did Bagehot about the interactions between the central banks' activities and macroeconomic stability more generally, and with that change in understanding has gone a considerable broadening of our views of those institutions' public responsibilities. If we no longer expect them actively to "fine tune" all cyclical fluctuations out of the system, we nevertheless argue as a commonplace that policies designed to maintain low and stable inflation will have the side effect of dampening these. The maintenance of gold convertibility ceased to be an over-riding goal for, not to say constraint upon, central banks in 1914, and never regained its dominant status thereafter; and although many countries still pay attention to exchange rate goals, these are always, in the last analysis subservient to domestic targets.

Furthermore, the regulatory and supervisory frameworks within which modern financial systems operate have essentially no precedents in 19th century Britain or anywhere else for that matter. To generalise here requires a very broad brush approach, but in most jurisdictions banks are nowadays subject to capital adequacy requirements and are exposed to regular oversight of their activities, sometimes by departments of a central bank and sometimes by separate regulators, all with a view to ensuring that they remain sound, or where this is in doubt, that any problems can be worked out in an orderly fashion that does not disrupt the financial system at large. In some jurisdictions, moreover, deposit insurance provides an alternative - or at least supplementary - guarantee to that provided by the traditional lender of last resort against the "contagion of fear" effects that were at one time thought capable of causing institution-specific instability to spread to the system as a whole.⁵

Clearly, a central bank that knew only that it should stand ready to lend freely at a high interest rate at the first sign of a financial panic would be hard put to perform effectively the tasks which we now routinely impose upon such institutions in the area that has come to be called *macro-financial stability*. To begin with, the high (or penalty) interest rate was supposed to play two roles in Bagehot's world: first, and perhaps less important, it was supposed to help separate insolvent from solvent-but-illiquid would be borrowers by deterring the former; but

⁵And deposit insurance creates moral hazard in the system too. It is in order to minimise this problem in the case of lender of last resort activities that central banks have traditionally maintained a certain level of ambiguity about the circumstances under which they are ready to come to the aid of specific institutions.

second, and crucially, it was intended to attract the short-term capital inflow that would maintain gold reserves while the domestic system was adjusting to tighter money. The activities of well informed supervisors surely diminish the importance of the first of these functions in the modern world, while the absence of firm exchange rate commitments diminish, and in the limit eliminate, the second. As to the occasional desirability of lending freely to specific institutions or to the market in general, this has perhaps not quite disappeared from the horizons of central banks, but it is hardly at the centre of their fields of vision.

Each country has no doubt produced its own examples, and I will confine mine to Canada. In 1985 two small Alberta based commercial banks began to encounter difficulties, and received “last resort” loans from the Bank of Canada. Both of them ultimately proved to be insolvent and were closed down by the regulators, while a third small institution, based in British Columbia, affected by general doubts about the viability of small western banks, was forced to seek salvation in being taken over by a larger competitor despite receiving last resort loans from the Bank of Canada and despite, as proved to be the case after the event, being solvent.⁶ These events are hardly an advertisement for the importance and effectiveness of Bagehotian lender of last resort activities in Canada, though it is arguable that the Bank of Canada’s intervention here helped ensure that they had no adverse consequences for the overall stability of the Canadian financial system. On a more positive note, however, on September 11th 2001, Canada’s Large Value Transfer System was kept operating relatively smoothly by a massive short-term infusion of high powered money (about \$2 billion, in a system that normally operates with total reserves of about \$50 million) and it is arguable that this highly exceptional event should be classified as a successful application of Bagehotian principles. Even so, we are here discussing exceptional events, not the everyday business of central banking, and that, I suspect is true in other jurisdictions too.

Nevertheless, the parallels between the Baring Crisis of 1890, that cemented the Bank of England’s reputation as a reliable lender of last resort, and Fed’s handling of the Long Term Capital Management affair of 1998 are worth explicit mention at this point. The Baring crisis was not just, or even, a matter of the Bank of England making loans to a solvent but illiquid commercial bank threatened with a run by its depositors. Baring Brothers was a merchant bank which had seen a large scale underwriting operation involving Argentinian municipal bonds

⁶John Crow (2002) pp.71-77 gives a rather detailed account of this episode.

come apart, and its viability was threatened by the unwillingness of its sophisticated lenders mainly other financial institutions to continue to grant it credit. Had Baring Brothers failed, however, there can be little doubt that this would have had repercussions for the stability of the entire banking system.

The Bank of England's role in that bank's preservation, played to be sure with considerable hesitation, as Pressnell (1968) has recounted, mainly involved co-ordinating the decisions of its creditors so that all of them agreed to extend their loans in order that Baring's problem could be worked out in an orderly fashion. The Fed's role in saving Long Term Capital Management in 1998 was essentially, even uncannily, similar: it too co-ordinate the decisions of sophisticated institutions, encouraging them to extend their loans to a creditor in serious difficulties while a resolution to its problems was sought, and once again the institution in question was not a commercial bank. This time - the major difference between 1890 and 1998, but not an essential one - it was a hedge fund whose speculations on the government-corporate bond yield spread had gone awry in the wake of problems in Russia, rather than a merchant bank whose troubles had originated in Argentina.

These two episodes are mentioned here, not only to suggest that the central bank's lender-of-last-resort function might still be important from time to time in the modern world, but also to highlight the fact that, in the hey-day of Bagehotian central banking, the function was widely understood to encompass a rather more broadly conceived responsibility for maintaining the stability of the financial system than a superficial reading of the pages of *Lombard Street* might suggest. Evidently the maintenance of macro-financial stability rather broadly conceived was very much a part of the monetary orthodoxy upheld by the Bank of England when the gold standard was at its zenith.

Thornton and Hawtrey on the Lender of Last Resort

Bagehotian central banking can be thought of as a very specific blend of rules and discretion. Under its principles, the Bank of England's behaviour was dominated by adherence to legally binding gold convertibility rule, and not just a voluntarily adopted exchange rate target. The discretionary element in those principles, always subordinate to that rule, involved the Bank's deployment of lender of last resort powers. In contrast, when Henry Thornton wrote about central banking during the French Revolutionary Wars, and Ralph Hawtrey wrote about it in the aftermath of World War 1, the central banks whose problems they analysed were unconstrained

by convertibility. We must be careful not to overstate the differences between them and Bagehot on the desirability of convertibility as a policy rule, because both of them supported it, though perhaps not as dogmatically as did he. Nevertheless, the circumstances under which they wrote led them to consider how central banks might deploy their lender of last resort powers in the absence of other over-riding constraints, and, not surprisingly, these powers took on a rather broader significance for them than they did for Bagehot.⁷

Not only did the institutional background of their work differ from Bagehot's, but so too did the theoretical framework that they brought to bear on the analysis of central banking. To the extent that he articulated it, Bagehot's theory of the long run price level was the classical cost-of-production theory of natural value applied to the special case of gold, whereas both Thornton and Hawtrey started from versions of the quantity theory of money, in the traditional sense of an explanation of price-level movements explained as the consequences of the behaviour of some monetary aggregate. In each case the quantity theory in question was a sophisticated one. It paid considerable attention to variations in velocity and it was extended to deal with the capacity of interactions between the banking system and the rest of the economy to generate endogenous fluctuations in the money supply.⁸ In each case too, the resulting framework was applied to questions about how the activities of the central bank could create instability in the economy at large if they were ill judged, and how they might dampen it if they were well judged.

Hawtrey's treatment of stability issues went well beyond Thornton's, because in 1802 even the regularity of financial crises was yet to be recognised, let alone the fact that this was but one feature of what, in the early 20th century, finally came to be called the "business cycle". Hawtrey's discussions of monetary policy were habitually conducted in terms of a well articulated monetary theory of the cycle that is recognisably a direct ancestor of the monetarist approach of Friedman and Schwartz (1963b). Even so, Thornton's often quoted principles for the behaviour of the Bank of England can still be read (albeit with some of the wisdom that hindsight brings to the interpretation of older texts) as an early blue-print for a cautious use of

⁷Laidler (2003) discusses Thornton's nuanced attitude to convertibility, and compares it to Bagehot's uncritical acceptance of the principle. On Hawtrey's monetary thought in general, and the place of the gold standard therein in particular, see Patrick Deutscher (1990)

⁸Indeed, Hawtrey's view of his own analysis was that it started from, but went beyond, the quantity theory.

monetary policy in a stabilising role.

“To limit the total amount of paper issued, and to resort for this purpose, whenever the temptation to borrow is strong, to some effectual principle of restriction; in no case, however, materially to diminish the sum in circulation, but to let it vibrate only within certain limits; to afford a slow and cautious extension of it, as the general trade of the kingdom enlarges itself; to allow of some special, though temporary, encrease [sic] in the event of any extraordinary alarm or difficulty, as the best means of preventing a great demand at home for guineas; and to lean on the side of diminution, in the case of gold going abroad, and of the general exchanges continuing long unfavourable; this seems to be the true policy of the directors of an institution circumstanced like that of the Bank of England.” (Thornton, 1802, p. 259)

The essential similarity between these principles and Hawtrey’s views on the powers of what we might call the generic central bank of his own day to influence economic activity is striking, all the more so since Hawtrey seems to have been unaware of Thornton’s contributions.⁹ Those views formed the basis for explicit advocacy of the deployment of monetary policy in a counter-cyclical role:

“The central bank, in virtue of its function as the lender of last resort, is the source of currency. It regulates the supply of currency by regulating its lending. By restricting its lending it causes the other banks to restrict their lending, and so it compresses the consumers’ income and outlay. By relaxing its lending it causes the other banks to lend more liberally, and so it enlarges the consumers’ income and outlay.” (Hawtrey, 1932, p. 279)

The significance of the central bank’s lender of last resort powers for both Thornton and Hawtrey thus lay not merely in the fact that those powers could be used to enable it to stave off

⁹This is not the place to go into the tangled question of Thornton’s influence on the development of monetary economics, which Neil Skaggs (1995) has recently discussed in some detail. Suffice it to note that there is nowadays something of a consensus among scholars that, although his name more or less vanished from sight from the mid-19th century onwards until his reputation was re-established by the work of Hayek (1939) and Viner (1936), the ideas that he originated remained extremely influential, though often attributed to others.

financial panic as and when this threatened, but more generally in the fact that it enabled them to control the behaviour of the money supply as a means to stabilising the economy.

In Hawtrey's case, moreover this view was applicable to the deployment of monetary policy in an explicitly counter-cyclical role, preferably, but not necessarily against the background of a gold standard reconfigured to ensure the co-ordination of monetary measures among countries, rather than to constrain their deployment, and his conception of the central bank as lender of last resort therefore has many more potential points of contact with current monetary policy problems than does Bagehot's.¹⁰

Hawtrey was just as insistent as any exponent of the contemporary "New Neoclassical synthesis" that the central bank's key policy instrument was a short term interest rate, though in his day the relevant rate was its rediscount (or *Bank*) rate rather than an overnight market rate. His approach differed from orthodox modern discourse, however, in insisting that variations in what we would call the quantities of high-powered money and chequable deposits, and hence in the quantity of money - *currency*, *credit* and *the unspent margin* respectively in Hawtrey's sometimes eccentric and nowadays archaic vocabulary - were essential features of the mechanisms linking the bank's actions to aggregate demand and hence to output and prices. As a corollary of this, he also argued that though its discount rate was the central bank's primary instrument, and adequate for normal circumstances, other measures were available to it in its quest for macroeconomic stability, should discount rate variations prove inadequate.

Specifically, when Hawtrey confronted what is nowadays referred to as the "zero lower bound" problem that can face a central bank operating with an interest rate instrument in a depressed economy, he did not conclude, as do modern commentators, that this represented an insuperable limit to the powers of monetary policy. It was his view that, should a business cycle's peak and downturn be marked by a bubble and then a crisis in the financial system, a prompt lowering of the discount rate, accompanied by a clearly signalled willingness to lend both to the market in general and to particular institutions in distress, was the central bank's

¹⁰Hawtrey's ideas for the re-configuration of the gold standard were at their most influential in the Genoa Resolutions of 1923, which, however, had no practical consequences. On his views on the gold standard, see Deutscher (1990), esp. pp. 39-42. It is worth noting that in (1932) he envisaged the then recently created Bank for International Settlements emerging as an international lender of last resort under a reconstituted gold standard.

appropriate immediate response. The interest rate behaviour proposed was not the one that Bagehot would have recommended, to be sure, for Hawtrey pre-supposed a system in which the constraints of the 19th century gold standard were not in place, but the generalised willingness to lend that he urged was quite consonant with inherited orthodoxy.

However, writing in 1932, with the Great Contraction well under way in the United States and elsewhere, he could not fail to see that such measures might not be enough, particularly because, as he also believed, the initial response of central banks in general and the Fed. in particular to gathering problems had been “deplorably slow” and “half-hearted” (Hawtrey 1932, p. 215). Normal lender of last resort actions could, and indeed in 1931-32 did, encounter what Hawtrey termed a *credit deadlock*., of which very low short-term interest rates were a prominent feature. To him the allocation of the blame for this state of affairs between market forces and policy mistakes was a secondary issue. What mattered was implementing measures to overcome a situation in which

“...demand is so contracted and markets are so unfavourable that traders, seeing no prospect of profit, abstain from enterprise and do not borrow. . . . The reluctance of borrowers may cause a contraction of credit quite as effectively as the reluctance of lenders. . . . Any one who can offer adequate security can borrow at ridiculously low rates . . . There is a deadlock which can best be broken by injecting money into the system” (Hawtrey 1932, p. 172)

According to Hawtrey open market operations were called for in such circumstances, on whatever scale would prove necessary, because

“There must ultimately be a limit to the amount of money that sellers will hold idle, and it follows that by this process the vicious circle of deflation can always be broken, however great the stagnation of business and the reluctance of borrowers may be” (Hawtrey 1932, pp. 173-174).

It is worth explicitly noting here that Hawtrey did not regard open market operations as some unorthodox policy measure designed to circumvent the normal channels through which monetary policy usually worked, but simply as an alternative means of increasing the money supply that would work when short interest rates had sunk so low, and business was so

depressed, that the usual means of bringing about such an expansion would no longer work. In his view it was always monetary expansion, an increase in the unspent margin, that was called for when the central bank sought to engineer an increase in what he usually called *effective demand*.

Hawtreyan Analysis and Current Problems

The similarities between Hawtreys (1932) advice to the Fed. and Friedman and Schwartz's (1963a) retrospective diagnosis of the problems that this central bank faced and failed to tackle in the early 1930s are striking, and need no elaboration here.¹¹ What is worth noting in the current context, though, is that Friedman and Schwartz's work on these matters was one of the key contributions to the "monetarist" literature that re-established the importance of monetary policy for the generation of economists out of whose work modern policy regimes based on inflation control, and the New Neoclassical synthesis that forms their intellectual underpinning developed.

And yet, somewhere along the line between the 1960s and today, the monetary aggregates, including the monetary base, whose behaviour was central to Friedman and Schwartz's analysis of the failure of the Fed. to perform adequately as a lender of last resort in the early 1930s, have almost disappeared from view. In contemporary discourse, informed by the New Neoclassical synthesis, monetary policy is a matter of controlling a short interest rate. In the case of Japan in the 1990s, that rate's "zero lower bound" was reached, and exponents of this view declared the economy to have encountered a *liquidity trap*, conventional monetary policy to be helpless, and to be in dire need of support from fiscal policy, exchange rate depreciation, and other measures designed to lower effective real interest rates by inducing expectations of future inflation.¹²

Somehow, that is to say, it has come to be widely accepted that the very explanation for

¹¹It is worth noting that there is a demonstrable line of influence that runs from Hawtreys work, through that of Lauchlin Currie, his assistant during his 1928-29 stay at Harvard, to the Chicago "oral tradition" of the 1930s from which Friedman in turn claimed inspiration for his own work. On this, see Laidler (1993).

¹²Lars Svensson (2003) provides a lucid and up-to-date survey of this strand in the literature.

the failure of monetary policy in the United States in the early 1930s that was discredited by Friedman and Schwartz's work, though it might indeed have been wrong in that case, was nevertheless the right one to apply to modern Japan. This paradox implicit here is even more puzzling in light of the fact that the liquidity trap hypothesis which is so often invoked to explain the alleged powerlessness of monetary policy there concerns not the behaviour of short term interest rates, which did indeed reach zero, but rather the elasticity of demand for money with respect to a long rate. Thus, the crucial empirical evidence that would have confirmed a liquidity trap's existence in Japan the 1990s would have been a large increase in the monetary base, and in some meaningful measure of the money stock too, that was then offset by a fall in their velocities with no other repercussions, but no such large increase took place before the Bank of Japan began its policy of *quantitative easing* in 2001. It is hard to see, therefore, on what empirical basis economists began to diagnose a liquidity trap in the later 1990s.

Now once it was set in motion in 2001, quantitative easing did lead to something close to a doubling of the ratios of base money and M1 to GDP in about a twelve month period, so the relevant empirical experiment was eventually performed. However, far from there being no further repercussions, a real expansion began to get under way about year later that still continues, while an apparently deeply entrenched, albeit slow, deflation now appears to be coming to an end. It is still too early to make a firm assessment of the significance of these events, but it is hard to resist the conclusion that, in their light, a credit deadlock is a more credible diagnosis of Japan's monetary problems in the 1990s than a liquidity trap, just as it was of US monetary problems in the 1930s.¹³

If further evidence, that is now in the process of being generated, supports this conjecture, then it would seem to follow that Hawtrey's conception of the key role of the lender of last resort function in conduct of monetary policy is nowadays worth more attention than it has commonly been given. Indeed. I suspect that economists' failure to take notice of this way of thinking about things has stemmed from the fact that, long before the Japanese bubble burst,

¹³Data to support the empirical assertions made in this paragraph are displayed in Bank of Japan (2004), Charts 43 (2) 44 (2), and 2 (1). A study of these and related issues by Kimura, Kubayashi, Murunasa and Ugai found evidence that the demand for money in Japan was satiated in the 1990s, but only a very small response of aggregate demand to increases in the money supply. However, this was completed before the recent sharp up-turn in the economy, and it would be interesting to know how the inclusion of more recent data would affect its results.

Hawtrey's analysis of central banking had slipped from our professional memory, despite the opportunity that Friedman and Schwartz's analysis of the Great Contraction provided for it to be recaptured.

I would also suggest that his analysis retains relevance even to currently state-of-the-art banking systems, such as Canada's, which operate on the basis of not just zero *required* reserves, but also, to all intents and purposes, zero *actual* reserves within the clearing and settlement system. At first sight it appears as if base money is quite irrelevant to the conduct of policy within such a system, an idealised version of which lies at the very heart of Woodford's (2003) codification of the New Neoclassical synthesis as a model of monetary policy in what he terms a "cashless economy". Only the price - or better price-range - of overnight money seems relevant to the conduct of monetary policy in Woodford's world, and in monetary systems like Canada's.

In fact, however, the deposit liabilities of the central bank still play the critical role as the means of settlement between banks in such as system, just as they always did. What is new here is that clearing and settlement systems such as Canada's are now so configured that the transactions and information costs of operating within them are no longer large enough to make it profitable for any bank to manage its portfolio so as routinely to end the day with a positive deposit at the central bank. Unlike their predecessors, therefore, such systems do not generate a positive demand for an inventory of precautionary balances whose size varies with the marginal cost of holding them. Rather they have gone to a corner solution in which zero balances are desired across a wide range of market interest rates.¹⁴ This state of affairs arises from the fact that the marginal non-pecuniary rate of return on even a very small reserve balance is extremely low, and this in turn is a consequence of the low information and transactions costs that now habitually prevail within the clearing and settlement system

We can, nevertheless, envisage situations arising from time to time, in which information about the ability of counter-parties to meet their obligations suddenly becomes unusually hard and expensive to obtain, and under such circumstances we should expect a

¹⁴In the Canadian system, commercial bank holdings of deposits at the Bank of Canada yield interest at a rate that is always 50 basis points below the rate at which they can borrow (*bank rate*), with the Bank's policy target for the overnight rate lying half-way between these extremes. One effect of this is to render the opportunity cost to commercial banks of holding such deposits invariant with respect to the overall level of market interest rates.

positive demand for stocks of precautionary balances on the part of banks to reappear for as long as those circumstances persist. Indeed, as I have already noted above, we briefly observed such a state of affairs on September 11th 2001, and it is not hard to imagine: first, that the threat of a panic arising from reasons endogenous to the workings of financial markets might also generate such a demand for reserves; second, that an old fashioned lender of last resort operation, designed to provide whatever amount of liquidity the financial system seems to need, would be the order of the day in such circumstances - as it was on September 11; or, third, that in some circumstances, the liquidity thus injected might have to be kept in circulation for longer than a few hours to keep the system functioning. Nor, finally, is it much harder to imagine that, were such an operation to be botched at its outset, the consequences might include a Hawtrey credit deadlock that would require vigorous open market operations to loosen it.

Such speculations are worth some attention, because one of the most intellectually stimulating and at the same time most worrisome strands in current discussions of monetary policy is that pioneered by researchers at the Bank for International Settlements which raises the possibility that ultimately destabilising asset market bubbles can still arise in circumstances where central bank policy is nevertheless delivering low and stable inflation. Exponents of this view argue that central banks need to be concerned with these issues over and above their more general commitments to inflation goals, and some of them have gone so far as to suggest that such threats are prevalent and dangerous enough to justify central banks in sometimes trading off current inflation goals in order to control bubbles and thereby stave off their longer term consequences for those same goals.¹⁵ Not everyone has found this last step of the argument convincing, arguing that measures intended to pre-empt financial instability by seeking to deflate bubbles might actually increase rather than lessen the chances of things going badly wrong.

Both sides of this debate do seem to agree, however, that asset market instability poses a real threat to present day monetary systems, and neither side claims to have a certain way of ensuring that major collapses such as have occasionally happened in the past - the US in the early 1930s, Japan in the early 1990s - will not re-occur. If such a recurrence is a possibility, however, then the conjectures set out above about the nature of the demand for reserves, even on the part of modern banking systems that seem to operate without them in tranquil times, suggest that an essentially Hawtreyan view of the central bank's lender of last resort role is of

¹⁵Perhaps the fullest account of this line of argument is given in Borio and Lowe (2002)

considerably more contemporary relevance than is generally realised.

Concluding Comment

This brief essay has covered a good deal of ground, but its conclusions are easily summarised. It has been argued: first, that the idea of the central bank as lender of last resort is as old as the idea of central banking itself; second, that the way in which this function fits in to any overall conception of the role of a central bank depends upon the configuration of the monetary policy regime as well as the theoretical framework that underpins the analysis deployed to analyse the issue; third, that these very considerations caused the most widely known treatment of the lender of last resort, namely Bagehot's, to be rather narrow in conception and of rather marginal relevance to modern conditions; but finally that a broader view of the lender of last resort's significance, pioneered by Thornton, and much more fully developed by Hawtrey a hundred and thirty years later, retains considerable relevance for modern central banking, even in regimes from which positive stocks of high-powered money have apparently disappeared, or are about to disappear, from clearing and settlement systems.

Thus, my answer to the question posed in the title of this session: "Central banks as lenders of last resort - trendy or passe?" must be: "Neither of the above, and indeed not quite trendy enough for comfort at the moment!"

References

- Bagehot, W. (1873) *Lombard Street: a Description of the Money Market*, as reprinted, ed. F. C. Genovese, Homewood Illinois, Richard Irwin, 1962
- Bank of Japan (2004) *Monthly Report of Recent Economic and Financial Developments*, July
- Baring, Sir Francis (1797) *Observations on the Establishment of the Bank of England and the Paper Circulation of the Country* as reprinted, New York, Augustus Kelley, 1967
- Borio, C. and P. Lowe Asset prices, financial and monetary stability: exploring the nexus, *BIS Working Paper* no 114, Basel
- Crow, J. (2002) *Making Money: an Insider's Perspective on Finance, Politics and Canada's Central Bank*, Toronto, Wiley
- Currie, L. C. (1934) The failure of monetary policy to prevent the depression of 1929-32, *Journal of Political Economy* 42, (Apr.) 145-177
- Deutscher, P. (1990) *R. G. Hawtrey and the Development of Macroeconomics*, London, Macmillan
- Edgeworth, F. Y. (1888) The mathematical theory of banking, *Journal of the Royal Statistical Society* 51 (Mar.) 113-126
- Fetter, F. W. (1965) *The Development of British Monetary Orthodoxy 1797-1875*, Cambridge MA, Harvard University Press
- Friedman, M. and A. J. Schwartz (1963a) *A Monetary History of the United States, 1867-1960*, Princeton, N. J., Princeton Univ. Press, for the NBER
- Friedman, M. and A. J. Schwartz (1963b) Money and business cycles, *Review of Economics and Statistics*, 45,(Feb.) 32-64

- Goodhart, C. A. E. (1985) *The Evolution of Central Banks*, London, LSE
- Goodhart, C. A. E (1999) Myths about the lender of last resort, as reprinted in Goodhart and Illing (eds.) 2002
- Goodhart, C. A. E. and G. Illing (eds.) *Financial Crises, Contagion and the Lender of Last Resort: a Reader*, Oxford, Oxford University Press
- Hawtrey, R. G. (1932) *The Art of Central Banking*, London, Longman Group
- Hayek, F. A. von (1939) Introduction to Thornton (1802, reprinted 1939)
- Humphrey, T. M. (1985) Lender of last resort, the concept in history *FRB of Richmond Economic Review*, 75 (Mar./Apr.) 8-16
- Kimura, T., H. Kubayashi, J. Muranasa and H. Ugai (2002) The effect of the increases in monetary base on Japan's economy at zero interest rates: an empirical analysis, *IMES Working Paper 2002-E-22*, Tokyo, Bank of Japan
- Laidler, D. (1993) Hawtrey, Harvard and the origins of the Chicago tradition, *Journal of Political Economy* 101 (Dec.) 1068-1103
- Laidler, D. (2003) Two views of the lender of last resort: Thornton and Bagehot, *Cahiers d'economie politique* 45, 63-78
- Pressnell, L. (1968) Gold reserves, banking reserves and the Baring crisis of 1890 in C. R. Whittlesey and J. S. G. Wilson (eds.) *Essays in money and Banking in Honour of R. S. Sayers*, Oxford, Clarendon Press
- Selgin, G. and L. White (1994) How would the invisible hand handle money? *Journal of Economic Literature* 32 (Nov.) 1718-1749
- Skaggs, N. (1995) Henry Thornton and the development of classical monetary economics, *Canadian Journal of Economics*, 28 (Nov.) 1212-1227

Svensson, L. (2003) Escaping from a liquidity trap and deflation: the foolproof way and others,
Journal of Economic Perspectives 17 (Fall) 145-166

Thornton, H. (1802) *An Enquiry into the Nature and Effects of the Paper Credit of Great Britain*
(repr. ed. F. A. von Hayek) London, George Allen and Unwin, 1939

Viner, J. (1936) *Studies in the Theory of International Trade*, New York, Harper Bros.

Wicksell, K. (1898) *Interest and Prices*, tr. R. F. Kahn for the Royal Economic Society, London.
Macmillan, 1936)

Woodford, M. (2003) *Interest and Prices: Foundations of a Theory of Monetary Policy*,
Princeton, N. J., Princeton Univ. Press