Two Views of the Lender of Last Resort: Thornton and Bagehot*I

by

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Questions about the Lender of Last Resort

What better topic for a conference to celebrate the bi-centenary of Henry Thornton's *Paper Credit* than the "lender of last resort". Thornton did not use, let alone originate, the phrase - it seems to have been Francis Baring (1797) who first referred to the Bank of England as the *dernier resort* for the other British banks - but he surely did more to develop understanding of the central role of the Bank in the monetary system than any other economist.[1] At the same time, though no-one would deny the canonical status of *Lombard Street* (Bagehot 1873) as an exposition of the principles of central banking, very few would dispute Frank Fetter's judgement that Bagehot's role was more that of a populariser than creator of ideas. In his still definitive (1978) account of the development of British monetary thought in the first three quarters of the 19th century, Fetter showed that it followed many twists and turns before ideas about central banking that had been set out at the very beginning of the Bullionist controversy achieved an acceptance so widespread that they warranted the label *British Monetary Orthodoxy.* As he summed the matter up,

> "Bagehot may not have said more than Francis Baring and Henry Thornton had said over sixty years before, but he said it in a way that carried conviction to a wider audience and to a new generation who no longer accepted all the premises from which Thornton's and Baring's conclusions had sprung" (Fetter, 1978, p. 274)

Even so, though Bagehot may have established an orthodoxy, he did not put a stop to debate about central banking in general and the lender of last resort in particular. Economists are still arguing

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[1] The fact that Baring seems to have coined the phrase in 1797, and that Thornton's definitive analysis pf the concept did not appear until 1802 does not imply that Baring also originated that analysis. A perusal of Thornton's 1797 evidence to various Parliamentary Committees shows beyond doubt that his understanding of this matter was already essentially complete at that time.

about these matters. Indeed, the debate has taken on a new vigour in the wake of the interlinked Asian, Russian and Long Term Capital Management crises of 1997-98. Questions such as whether a central bank is needed at all, whether, given that it does serve as a lender of last resort, what is the broader purpose of such action, and whether the lender of last resort. should be national or international in character, are all still open.

The first two of these issues were discussed off and on throughout the 19th century, and because they are still current, a conference on the lender of last resort is of far more than antiquarian interest. At the same time, because they have been on economists' agenda for so long, a little attention to the older literature might still throw some extra light on them.[2] That, at least, is my hope in writing this paper. In it, I shall mainly explore the relationship between what Thornton (and to a lesser extent Baring) on the one hand, and Bagehot on the other, had to say about the central bank as a lender of last resort.

I shall argue that, inasmuch as they both gave pride of place to this role in their analysis of central banking, they are properly classified as pioneers of a discretionary approach monetary policy, in contrast to Ricardo and the Currency School who sought to limit the central bank's actions with binding rules. But, I shall also show that the cases made for discretion by these two were very different. Where Bagehot thought that the Bank of England owed its existence to a series of historical accidents that had created a theoretically inferior structure for the British monetary system, Thornton believed that central banking was intrinsically desirable; where Bagehot assigned to the Bank of England the role of creating confidence in credit markets, and of underpinning their stability, Thornton saw the central bank's prime tasks as being to prevent sudden swings in the money supply, and to offset fluctuations in its velocity; and where Bagehot took the primacy of gold convertibility for granted, Thornton was sometimes willing

[2]Even the third of them, which is beyond the scope of this paper, is at least seventy years old, having been broached by Ralph Hawtrey (1932), who speculated on the possibility that the then newly founded Bank for International Settlements might evolve into a lender of last resort for an international monetary system based on a renewed and re-organised gold standard.

to subordinate its maintenance to the avoidance of monetary contraction.

Historical Background

When *Lombard Street* appeared in 1873, monetary economics was already beginning to develop that internal dynamic which is the mark of an academic discipline, but Bagehot belonged to an earlier tradition in which the sub-discipline's literature was the creation of business-men, bankers, politicians, journalists and so on, whose predominant concern was current policy. Though this literature made intellectual advances of permanent importance, these were almost always developed and discussed with a contemporary readership in mind. Thus, any comparison of what Thornton and Baring had to say about central banking at the turn of the 19th century with what Bagehot had to say about the same matters seventy years later, needs to pay some attention to the radically different circumstances of the two periods.

The Bullionist controversy in Britain, to which Thornton and Baring were early and important contributors was carried on against the background of a war with Revolutionary and Napoleonic France that was pursued with varying degrees of intensity for almost 25 years. That war's outbreak in 1793 was marked by a financial crisis that almost brought about the suspension of gold convertibility of its notes by the Bank of England; and the landing of a small French force in Wales in February 1797, against the background of widespread French military successes on the Continent of Europe, provoked a second crisis that did end in a suspension that would last until 1821. The key questions about the Bank of England that dominated the earlier phases of the Bullionist controversy were, first, how it should respond to crises provoked by "real shocks" that were quite exogenous to the monetary system, and, second, how it should conduct itself against the background of what may loosely be described as a flexible exchange rate, albeit one that was expected to be fixed again at some future date.

The early 1870s, on the other hand, were a time of peace (at least for Britain), and the financial crisis of 1866, which had given new vigour to the debate that culminated in the publication of *Lombard Street,* had important causes within the financial system, more specifically, as Bagehot described the matter, in decisions made by a new generation of owners at the firm of Overend and Gurney, a leading discount house, "whose folly surpassed the usual limit of imaginable incapacity" (p. 133).[3]

The institutional framework had changed between 1797 and 1873 as well. In 1797, deposit banking was not well developed. Outside of London, the banks were primarily note issuing institutions, obliged to convert their liabilities on demand into gold coin, and holding their reserves in London; within London, on the other hand, transactions among financial institutions were mainly settled in Bank of England notes. Confidence in the convertibility into gold of Bank of England notes, and of other monetary assets into Bank of England notes, was therefore all important for the stability of the monetary system.

By Bagehot's time, confidence in the Bank's ability to redeem its notes in gold was not an issue, for this had been ensured by the provisions of the 1844 Bank Charter Act, but the ability of its now separate Banking department to redeem its deposits in Bank of England notes was.[4] To put matters in modern terminology, Bank of England notes were the key component of high powered money in 1797, but had been superceded in this role by Bank of England deposits by 1873. Furthermore, the 1844 Bank Charter Act had established a monopoly for the Bank of England in the provision of currency, so the role of country bank notes in the monetary system was no longer on the agenda. Finally, the usury laws that had limited the Bank's discount rate to a maximum 5 per cent throughout the suspension

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[3]And of course problems with specific financial institutions had been important in earlier peace-time crises too. Denis O'Brien (2002) has recently discussed important evidence about the role of Vincent Stuckey and Thomas Joplin in developing what became Bagehotian ideas about the Bank of England's responsibilities during the crisis of 1825. He notes that Bagehot's father was, at that time, an employee of Stuckey's bank. It was during this crisis that Thornton's bank, which, after his death in 1815 had evolved into the firm of Pole, Thornton, Free, Down & Scott, failed. (See Hayek, 1939, p. 34)

[4]The Act had created a separate Issue Department at the Bank, which, above a fiduciary issue backed by government bonds, was obliged to vary the note issue in a strict one for one relationship with its stock of specie. The Deposit Department was left free of legal restrictions and was expected to operate as a large commercial bank.

period had been repealed in 1833. This interest rate (bank rate) had therefore emerged as the Bank's key instrument long before 1873.

It is also worth remarking that Thornton and Bagehot occupied quite different positions in the development of the monetary thought of their times. Bagehot was very much a conservative, largely uninfluenced by, and sometimes, as his attack on Jevons' (1875) proposals for the indexation of credit market contracts (See Bagehot [1875] 1892), deeply suspicious of, contemporary innovations in monetary economics.[5] Thornton, on the other hand was, by common consent, a creative monetary theorist of the highest order, and well ahead of his time. The particular element in his work that is relevant to this paper deals with the place of the Bank of England in the British monetary system, but this was but one component of an essentially complete exposition of the fundamentals of monetary economics. The full title of *An Enquiry into the Nature and Effects of the Paper Credit of Great Britain* echoes that of the *Wealth of Nations*, and claims for the work the status of a comprehensive treatise. Its contents fully confirm the justice of that claim. As Anna Schwartz noted in her 1981 Henry Thornton lecture

> "He understood: the fallacy of the real bills doctrine; the distinction between the first-round and ultimate effects of monetary change; the lag in the effect of monetary change; the problem market participants faced in distinguishing relative from general price changes; the distinction between internal and external gold drains; the factors influencing the foreign exchanges including the role of purchasing power parity; how to bring inflation under control; the relation of the Bank of England to other English banks; types of effects of monetary disturbances on interest rates; the distinction between the market rate and the natural rate of interest and between nominal and real rates of interest" (Schwartz 1989, p. 41)

[5] This is not the place to argue the matter, but there is a case to be made that Bagehot's hostility to Jevons' proposals stemmed in part from a failure fully to understand the economics underlying them.

And even this astonishing list is not quite complete. To it should be added, as a minimum, an understanding of the rudiments of liquidity preference theory and the mechanisms of forced saving (Hayek, 1939), of the distinction between temporary and permanent shocks, not to mention of the fact that government debt ought not to be considered, from the point of view of the economy as a whole, net wealth. (See, respectively, Thornton 1802, pp. 118-119 and p. 80)

Central Banking, Discretion and Rules

The fundamental insight that links the work of Baring and Thornton to that of Bagehot is that the Bank of England was not just another bank, albeit a large one whose shareholders enjoyed limited liability and certain monopoly privileges too, but rather an institution that occupied a special and central position in the British financial system. Indeed Baring and Bagehot used an identical metaphor to characterise that position. In Baring's words, " the Bank must be considered solely as the centre or pivot, for the purpose of enabling every part of the machine to move in perfect order;" (1797, p. 6), while Bagehot asserted that "an immense system of credit, founded on the Bank of England as its pivot and its basis, now exists" (p. 33)

The Bank of England's central position in the system depended, as is now well understood, upon the fact that the Country, not to mention Scottish, banks held reserves in the form of deposits with the London Banks, which by Bagehot's time had evolved into the discount houses. These in turn held their reserves in the form of Bank of England liabilities, primarily notes in 1797, but deposits in 1873. And the Bank of England, as the repository of the gold reserves of the whole financial system, sat at the apex of the inverted credit pyramid thus created.[6]

In this system, any demand for gold for export to meet a balance of payments deficit - an *external drain* - or to meet an increased demand for gold coinage stemming from a decline in the

[6]Needless to say, the pyramid in question was not quite that neat, for Country and Scottish banks held gold on their own account, as did London banks, and Bank of England liabilities too, but it probably became better defined as the 19th century progressed.

public's confidence in the stability of the country banks - an *internal drain* - would therefore find its way back to the Bank of England, which, uniquely, ". . .has no bank to which it can resort for a supply of guineas proportioned to its wants in the same manner in which it is resorted to by the country banks" (Thornton 1802, p. 123). Hence, "In such cases the Bank are [sic] not an intermediate body, or power; there is no resource on their refusal, for they are the *dernier resort.*" (Baring 1797, p. 22), so that ". . . all our credit system depends on the Bank of England for its security. On the wisdom of the directors of that one Joint Stock Company, it depends whether *England shall be solvent or insolvent.*"
(Bagehot 1873, p. 17, italics in original)

The very fact that it is possible to characterise this view of the Bank of England's position in the monetary system by linking quotations from works written three quarters of a century apart attests to the essential similarity of their authors' understanding of that position. And their view of the responsibilities that this position imposed upon the Bank for ensuring the stability of the system was equally similar. The Bank of England should hold reserves of gold (or, after 1844, its banking department should hold reserves of convertible notes) in amounts larger than the preservation of its own solvency would require, and stand ready to make these available to the market in the event of any incipient internal drain.[7]

It is worth recalling that, commonplace though this view of the role of a central bank might now be, it was by no means universally held in the years before 1873.[8] During the period of suspension, Thornton and other moderate bullionists argued that the Bank of England should exercise its own best judgement in responding to drains of gold, and that in many circumstances (such as those which had arisen in 1793 and 1797) it would do better to expand its lending in order to sustain the volume of its

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[7]This is not to say that their views on these matters were identical in every detail. Humphrey (1989) provides an exceptionally clear account of the similarities and differences between Thornton and Bagehot's expositions.

[8]I have discussed the question of rules versus discretion in 19th century debates in Laidler (2002, forthcoming)

notes in circulation, rather than contract lending to defend its reserves, but David Ricardo (1810-11) and other exponents of a more extreme position, had insisted that an external drain of specie (or tendency for the exchange rate to fall under conditions of inconvertibility) should always be met by a reduction of the Bank's note issue. This case for rules in due course triumphed, and Sir Robert Peel's 1844 Act rigidly tied the behaviour of the stock of currency, which its architects identified with the money supply, to that of the Bank's specie reserves in order to enforce such a response.

Furthermore, as Bagehot later remarked, because the Act had removed responsibility for the behaviour of the currency from the Bank, after its passage, "rashly . . . it was inferred by many that the Bank had no responsibility" (pp.79- 80). Such a position was popular even, perhaps particularly, at the Bank of England itself. During the Bullionist controversy, its directors had been anxious to deny that their institution occupied any special place in the financial system, and Bagehot (1873, pp. 83-84) pointed out to his readers that at least one of their successors, Mr. Charles Hankey, was still taking this view after the crisis of 1866, arguing that "The more the conduct of the affairs of the Bank is made to assimilate to the conduct of every other well-managed bank in the United Kingdom, the better for the Bank, and the better for the community at large." (As quoted by Bagehot, 1873, p. 84)

The Naturalness of Central Banking

There was agreement between Thornton and Bagehot on the central role of the Bank of England in the British monetary system, then, but when we probe their accounts of this matter further, we begin to enter areas where their doctrines diverge. As Charles Goodhart (1985, Annex C.) pointed out some years ago, Bagehot thought that the Bank of England's role was the product of historical accident, the unintended outcome of privileges granted to a particular institution and of restrictions imposed upon the rest of the monetary system, and one that would not have been bestowed upon it by market forces, in contrast to Thornton who, while paying due attention to historical and institutional circumstances, believed that they had contributed to an outcome that, given the nature of banking, was desirable in its own right and indeed required by those very market forces.

Bagehot's comparison between the British system, with the Bank of England at its pivot, and an alternative "many-reserve system of banking" such as he believed existed in the United States, and which he characterised as "natural", still provides powerful ammunition to critics of central banks. No twentieth century advocate of "free banking" from Vera Smith (1936) to George Selgin and Lawrence White (1994) has failed to note Bagehot's belief that "A republic with many competitors of a size or sizes suitable to the business, is the constitution of every trade if left to itself, and of banking as much as any other. A monarchy in any trade is a sign of some anomalous advantage, and of some intervention from without." (1873, p. 33).

Bagehot's use of a political metaphor here was carefully considered. The author of the *The English Constitution,* regarded opposition either to constitutional monarchy or central banking as "childish" as a practical matter, because "Credit in business is like loyalty in Government. You must take what you can find of it, and work with it if possible" (p.33). But, in basing this argument in both cases on the strength of social convention rooted in a specific history, he explicitly limited its applicability, again in both cases, to Britain. He did not recommend constitutional monarchy as a form of government to other nations, and when it came to central banking, he argued that the Bank of England had acquired its role as an unforeseen consequence of the monopoly privileges bestowed upon it at its foundation in 1694. Though he argued that it was pointless to try to undo this arrangement, he nevertheless implied that an alternative competitive system, with each bank holding its own reserves, was not just viable, but, in an *a priori* sense, preferable into the bargain. Thus, however we might look at *Lombard Street* nowadays, in Bagehot's view it offered not a general theory of the institutions associated with central banking and a universal prescription for their behaviour, but a merely a specific *Description of the Money Market* as it existed in contemporary Britain, and of the role played by the Bank of England therein.

Nowadays we know that there is a good deal more to the banking system's demand for reserves, and its implications for the design of the monetary system, than Bagehot was aware of.

Reserves, where they are not legally required, represent a demand for the money that bankers use to transact with one another, and that makes the medium in which they are held subject to "network externalities". One bank money, that is to say, is better than many. Furthermore, being essentially a response to "precautionary" motives, the demand for reserves is characterised by significant economies of scale.[9] Even banks that are subject only to drains of reserves distributed independently among them enjoy such economies, and to the extent that drains on individual banks represent movements of funds *among members of* the system rather than *out of* it, these economies are accentuated.

To say that Bagehot did not understand these matters in 1873 is not to criticise him. The analysis referred to here was developed a little later, by Francis Y. Edgeworth (1888) and Knut Wicksell (1898), in whose hands it became the basis of the "pure credit economy" model.[10] But the fact remains that these considerations do imply that a system of "many reserves" is not an equilibrium outcome in banking. The economies of scale and network externalities which it emphasises provide strong incentives towards the centralisation of reserves which will also be held in a common medium.

It would be absurd to claim that Thornton anticipated the precise analysis of Edgeworth and Wicksell, but he displayed a remarkable intuitive insight into the forces they analysed, and this insight underlay his conclusions about the economic desirability of there being a single central bank in the system. When it came to describing the British monetary system, Thornton emphasised the role of London banks in carrying out transactions on behalf of and between agents located in different regions of the country just as much as did Bagehot, and like Bagehot too, he understood that transactions

[9]Though, to be fair to contemporary advocates of "free banking", there is still more than one intellectually respectable view of the implications of economies of scale. George Selgin (1993), for example, has argued that economies of scale in and of themselves imply no more than the development of a central clearing house, rather than a central bank, which, he argues will only emerge in the presence of legal privileges. This is not the place to debate this question.

[10]I have discussed the development and significance of this analysis in Laidler (1991, pp.184-186. It should also be noted that Jevons' discussion of the "Clearing House System" in (1875, Ch. 21) emphasises the economies in the use of cash that this institution had created. These economies are, of course, part of the story told by Edgeworth and Wicksell.

among London based institutions were carried out with Bank of England liabilities, specifically Bank of England notes at the time he wrote. But in *Paper Credit*, he went more deeply into the specifically monetary consequences of these facts than did Bagehot seven decades later.

> "The practice, indeed, of transferring the payments of the country to London being once begun, was likely to extend itself. For, in proportion as the amount and number of payments and receipts is augmented in any one particular place, the business of paying and receiving is more easily and cheaply transacted, the necessary guineas becoming fewer in proportion to the sums to be received and paid, and the bank notes wanted, though encreasing on the whole, becoming fewer in proportion only. On the punctuality with which the accustomed payments of London are effected, depends, therefore, most essentially the whole commercial credit of Great Britain. The larger London payments are effected exclusively through the paper of the Bank of England; for the superiority of its credit is such, that, by common agreement among the bankers, whose practice, in this respect, almost invariably guides that of other persons, no note of a private house will pass in payment as paper circulation in London" (1802, pp. 104-105)

The first part of this passage, which argues that market forces driven by economies of scale lay behind the concentration of the British monetary system on London has no direct parallel in *Lombard Street*.[11] But, with due allowance for the evolution of deposit banking in the intervening years,

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[11]And in 1811, in a speech on the *Bullion Report*, Thornton again took up the matter of economies of scale. He told that House of Commons that

> "As in many manufacturing concerns there had been a perpetual exercise of ingenuity, and a constant abridgement of labour; so in the banking system there had been an exertion of the talents of individuals in producing [sic, but surely *reducing*] the necessary quantity of notes. Evidence had been given before the Bullion Committee of the increasing number of money brokers, who passed from one banking-house to another, and supplied the daily and hourly wants of one quarter, by carrying away the superfluity of another. If we could suppose the sixty or seventy bankers of the metropolis to be reduced to six or seven, it was obvious that a very diminished quantity of notes would suffice for the same business. The improvements in the banking system tended to unite, as it were, into one house, for the purpose of which he was speaking, even those bankers who held no direct communication with each other" (1811, pp. 357-358)

Bagehot's work is full of references to the crucial role of Bank of England liabilities described in its second half. There are, moreover, parallels between the explanations given by Thornton and Bagehot as to how this role had come to fall upon the Bank. Both discussed its dominant role in the government debt market, and its having been constituted as a private joint stock company rather than a branch of government. But, unlike Bagehot, Thornton believed that these factors had led, not to an inferior configuration for the financial system as a whole, of which the best had to be made, but to the economically most desirable outcome for that system.

Where Bagehot argued that ". . . our *one*-reserve system of banking . . . was the gradual consequence of many singular events, and an accumulation of legal privileges on a single bank . . . which no-one would now defend" (p. 49), and envisioned an alternative "natural" system of banking under which "we should have relied on self interest" (p. 55) to provide financial stability, Thornton suggested that a propensity to instability lay in the very nature of banking, and that "The accident of a failure in the means of making the cash payments of a country, though it is one against which there can be no security which is complete, seems, therefore, to be best provided against by the establishment of one principal bank." (1802, p. 127) For Bagehot, that is to say, the need for the Bank of England to act as a lender of last resort derived from its dominant position in the British financial system, which it had acquired over time as a result of its monopoly privileges. For Thornton, that dominant position, though certainly the product of a specific history in which those privileges played an important part, was nevertheless justified by the need of any financial system for a lender of last resort.

Credit versus Money

Bagehot and Thornton differed not only on the "naturalness" or otherwise of central banking, but also on how the workings of the banking system in general, and of the central bank's operations in particular, impinged on the operation of the economy. Bagehot saw the productivity of the banking system as arising from its place in a complex market for credit, and he believed that banking panics were destructive precisely because they disrupted this network. For him, therefore, the Bank of

England's key task as lender of last resort was to minimise these adverse effects. Thornton too was keenly aware of the importance of the banks as financial intermediaries, but he also emphasised that their liabilities constituted an important component of what he called "the circulating medium". As a result, he located the origins of the harm done by banking panics in the sudden slowdowns in velocity and contractions in the volume of bank liabilities that were associated with them, and he saw the Bank of England's main responsibility as being to prevent these. Bagehot, in short, was concerned with bank assets, and with minimising instability in the supply of credit, while Thornton was concerned with bank liabilities, and with minimising instability in the supply of money and its velocity of circulation.[12]

Bagehot's views on the importance of the credit market, and the banking system's role in it, can be summarised in his own words:

> "The main conclusion is very plain - that English trade is become essentially a trade on borrowed capital, and that it is only by this refinement of our banking system that we are able to do the sort of trade we do, or to get through the quantity of it.
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> But in exact proportion to the power of this system is its delicacy - I should hardly say too much if I said its danger. Only our familiarity blinds us to the marvellous nature of the system. There never was so much borrowed money collected in the world as is now collected in London. Of the many millions in Lombard street, infinitely the greater proportion is held by bankers or others on short notice or on demand; that is to say, the owners could ask for it all

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[12]Once again, this is a theme in the economics of central banking that Goodhart (1985) has taken up. He argues there that "Monetary economists have tended to concentrate, perhaps unduly, on the special nature of bank liabilities: it is, just as much, the special characteristics of bank assets that make the establishment of a central bank essential." (p. 34) By this Goodhart specifically meant that the non-marketability of many bank loans implied that the access to credit of the customers of any bank in distress, might be put at risk by its failure, and hence make that bank a potential object for support by the central bank, regardless of whether that distress had arisen from an attempt on the part of the pubic to convert that bank's deposit liabilities into currency, or simply into the deposit liabilities of other banks. This specific reason for considering credit relations is not to be found in Bagehot, perhaps because he distinguished between illiquid and insolvent institutions, and regarded only the former as worthy of aid, but Goodhart has much less confidence in the operational content of this time honoured distinction. (see 1985, p. 35). See also Goodhart (1999) for further discussion of these issues.

any day they please: in a panic some of them do ask for it. If any large fraction of that money really was demanded, our banking system and our industrial system too would be in great danger." (1873, p. 8)

Given that "All banks depend on the Bank of England, and all merchants depend on some banker" (p.17), the responsibility for dealing with panics devolved upon the Bank. For this purpose, Bagehot stressed above all ". . . the cardinal importance of always retaining a great banking reserve. Whether the times of adversity are well met or ill met depends far more on this than on any other single circumstance. If the reserve be large, its magnitude sustains credit; and if it be small, its diminution stimulates the gravest apprehensions." (p. 78) The point of a large reserve was that it would permit the Bank to respond to an external drain of gold needed to meet a balance of payments deficit without its value falling below what Bagehot called "the apprehension minimum", the level at which confidence in the banking system's ability to maintain the convertibility of its liabilities would weaken to the extent that an internal drain would begin.[13] And, should an internal drain be superimposed upon the external drain, then

> "We must look first to the foreign drain, and raise the rate of interest as high as may be necessary. Unless you stop the foreign export you cannot allay the domestic alarm. The Bank will get poorer and poorer, and its poverty will protract or renew the apprehension. And at the rate of interest so raised, the holders - one or more - of the final Bank reserve must lend freely. Very large loans at very high rates are the best remedy for the worst malady of the money

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[13]This minimum was not a constant amount in Bagehot's view, but something about which the Bank of England had to form a judgement that would vary with the state of confidence. "There is no 'royal road' to the amount of the 'apprehension minimum'; no abstract argument, and no mathematical computation will teach it to us . . .Credit is an opinion generated by circumstances and varying with those circumstances" (p.157)

market when a foreign drain is added to a domestic drain." (pp. 27 - 28)[14]

Now I have already drawn attention to the fact that Baring and Thornton's discussions of the monetary system, and the Bank of England's role therein, were written in a specific historical context, in which the Bank's ability to raise its rate of interest was limited by the usury laws, and in which the convertibility of its notes was suspended. For these reasons alone, their accounts of these matters were bound to differ from Bagehot's. But it would be a mistake to attribute the differences in question solely, or even mainly, to these specific historical circumstances. Rather, they stemmed from important differences between the theoretical framework which they brought to bear on these matters, and the one which underlay Bagehot's analysis. For Bagehot, what mattered was credit, and the rate of interest, but for Baring and, particularly, Thornton the critical variables were the quantities of various sorts of money and their velocities of circulation.[15]

Paper Credit begins, as does *Lombard Street,* with praise for the productivity of credit, and a warning about the risks inherent in its use. "The option of buying and selling on longer or shorter credit, as it multiplies the number of persons able to buy and sell, promotes free competition, and this contributes to the lower price of articles" (p. 77) but "At some periods [mercantile confidence] has risen to a most unwarranted height, and has given occasion to the most extravagant and hurtful speculations." (P. 78) Unlike Bagehot, however, Thornton also points out explicitly that "commercial credit is the foundation of *paper credit*" (p. 76, italics in original), and, following Adam Smith (1776, Book 2 ch. 2), that, to "very great a degree, paper credit also spares the use of the expensive article of

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[14]Note that the need for a high interest rate is here directly linked to the external drain, rather than to internal circumstances. Goodhart (1999, p. 4) takes issue with the interpretation, sometimes given to Bagehot's policy prescriptions, for example by Humphrey (1989), that the "very high" interest rate at which the bank lent freely should always be a "penalty rate", and this passage, which he does not explicitly cite, supports his position on this matter.

[15]Thornton and Baring both discussed the usury laws explicitly. Thornton in particular argued that they sometimes prevented the Bank of England raising its discount rate high enough to choke off inflationary expansions of the money supply. In such cases, he argued that, though monetary expansion could have been be controlled by the Bank raising its interest rate, it should apply some "effectual principle of restriction", rather than lend to all willing borrowers at fiver cent, as exponents of the real bills doctrine would have had it do.

gold." (p. 76). He then passes on to an elaborate discussion of the uses of various forms of paper credit, including bills of exchange, in the "circulating medium" (the contemporary phrase for the money supply), and to a critique of Smith's treatment of these matters. Neither of these have any parallel in *Lombard Street*.[16]

Specifically, Thornton begins with Smith's dictum that "'The whole paper money of *every kind* which can *easily* circulate in any country, never can exceed the value of the gold and silver of which it supplies the place, or which (the commerce being supposed the same) would circulate there, if there was no paper money" (Smith, 1776, as quoted by Thomton, 1802, p. 95. Thornton's italics). He then complains that Smith

> " . . .appears . . .not at all to have reflected how false his maxim is rendered . . . both by the different degrees of rapidity of circulation which generally belong to the two different classes of paper of which I have spoken [bank notes and bills of exchange], and also by the different degrees of rapidity which may likewise belong to the circulation of the same kinds of paper, and even of the same guineas, at different times" (pp. 95-96)

The "different times" which Thomton had in mind here, were periods of commercial optimism and apprehension. In the former, the velocity of circulation of Bank of England notes and of guineas would be relatively high, but, as had happened in1793, for example, " the existing number [of Bank of England notes] became, at the period of apprehension, insufficient for giving punctuality to the payments of the metropolis" (p.98). At the same time, mainly outside of London, "a state of distrust causes a slowness in the circulation of guineas, and . . .at such a time a greater quantity of money will be wanted to effect only the same money payments" (p. 99).. Hence,

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[16] Interspersed here is a a brief discussion of the superiority of monetary exchange to barter, and of the tenuousness of the then commonly made distinction between real and fictitious bills. *Paper Credit* is not, as its first reviewer Francis Horner (1802) pointed out, a well organised book. "But the various discussions are so unskilfully arranged, that they throw no light on each other, and we can never seize a full view of the plan." (p.29)

> "however just may be the principle of Dr. Smith when properly limited and explained, 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 reduction may even aggravate that sort of rise which is caused by an alarm in the country" (p. 104)

Thus, when the Bank of England found itself simultaneously losing guineas from its reserves as these drained into the country circulation, and facing an increased demand for its notes in London, it should lend freely and allow its reserve ratio to decline. As Francis Horner summarised Thornton's doctrine in the *Edinburgh Review,* "Unless the Bank of England . . . which is the source of the circulating medium shall . . . enlarge its issue of paper, a general subversion and ruin of [the commercial credit of the kingdom] may take place"; and to be in a position to do this, the Bank ". . . ought to keep at all times in its treasury such an additional quantity of gold, as may be sufficient to meet this extraordinary demand, and to supply the place of those country notes that are liable to be extinguished" (Horner 1802, p. 47)

With due allowance for the different institutional circumstances of 1802, Thornton's practical policy advice is much the same as Bagehot's. Here again we are encountering the harmony of their views on the need for discretionary policy on the Bank's part. But Thornton's justification for this in terms of the need not just to sustain the level of the money supply, but even to increase it to the extent that declines in the velocity of its various components required this is quite different from Bagehot's. One cannot imagine Bagehot, with his over-riding concern for stabilising the credit market agreeing with Thornton that

> ". . . it is not the Limitation of Discounts or Loans, but . . . the Limitation of Bank Notes or of the Means of Circulation that produces the Mischiefs I have spoken of, and . . . whether the Bank lend more to the Government, and less to Individuals, or less to Government and more to

Individuals, the Quantity of the Bank Paper which comes into Circulation, and therefore the Effect upon the Public also, will be much the same." ([1797], 1939, p. 307)[17]

Gold Convertibility

Now, in Bagehot's view, the immediate goal of the Bank of England in times of crisis was to preserve confidence in the convertibility of its deposit liabilities into Bank of England notes, and he took the convertibility of Bank of England notes into gold at a fixed price for granted. When he characterised the 1844 Bank Charter Act as "only a subordinate matter in the money market" (p. 1), he was referring to its relevance for the behaviour of the market for bank credit, not denigrating its overall importance for the British monetary system. He was well aware that the management of the currency had been the Bank's responsibility before the passage of that Act, and that its exercise of that responsibility had been the object of much legitimate debate between 1793 and 1844. But he was equally aware that "By that Act the currency manages itself; the entire working is automatic. The Bank of England plainly does not manage - cannot even be said to manage - the currency any more." (p. 79)

There is no explicit defence of gold convertibility in *Lombard Street* for the simple reason that Bagehot thought its desirability too obvious to need debating. We must turn to his ([1875] 1892) attack on Jevons' (1875) proposal for a "tabular standard of value", already mentioned above, to find a discussion of this matter.[18] There, he noted Jevons' evident belief that ". . . economical science . . .can point out to mankind a far better standard of value than gold or silver", and responded that ". . .for ourselves we much fear that political economy has no such boon to confer on mankind, and that we must adhere to one or the other of the precious metals as a standard of value like our forefathers"

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[17]Note that Thornton repeated this view five years later in *Paper Credit.* It was, therefore a carefully considered one. See (1802, p. 129)

[18]This review, initially anonymous, was reprinted in the *Economic Journal* over Bagehot's name at the suggestion of Robert Giffen, as a supplement to his own rebuke (Giffen 1892b) to Aneurin Williams (1892) for proposing a monetary scheme essentially the same as Irving Fisher's (1911) later and much better known "Compensated Dollar" plan. Giffen's paper also criticised "some of our younger economists", whom he left un-named, for advancing what he regarded as impractical proposals for monetary reform, and this seems to have unnerved Alfred Marshall. On this, see Laidler (1891, pp. 176-177)

(p.472). Furthermore, he declared,

> "In a good currency the paying medium ought either to be identical with, or be readily interchangeable into, a definite quantity of the standard of value. This is so, for example, so long as sovereigns are both the standard of value and the paying medium, and so long as banknotes are convertible at once for the number of sovereigns which each note mentions," (p.476)

And Bagehot went on to identify a failure to conform to this principle as "the essential fault of an inconvertible currency, say, of 'greenbacks,' for as no one can demand metal dollars for them, they are sometimes at one value and sometimes at another" (p.477)

Now Thornton was certainly a defender of gold convertibility as a method of stabilising the value of money, but he was by not nearly as strongly devoted to the gold standard as Bagehot. He was prepared to argue, as a matter of theory, that "A paper circulation which is not convertible into Specie will as much maintain its Value as a paper circulation which is convertible provided its quantity is equally limited and the credit of the issuing Bank equally perfect in both cases" ([1804,] 1939, p. 315). Even when it came to practice, though Thornton did not go quite so far as Baring (1797, p. 55), who pronounced the suspension of February 1797 "indispensable", albeit "calamitous", he nevertheless suggested that "the bank, at the time of the failure of its cash payments, had lent too little rather than too much", that "The law authorising the suspension. . . seems . . . to have only given effect to what must have been the general wish of the nation in the new and extraordinary circumstances in which it found itself" (p.139) and that "The parliament. . .were led by the practical view which they took of the subject, to disregard theory, as well as some popular prejudice, for the sake of more effectively guarding the public safety, and promoting real justice.' (p. 55)

The theme that convertibility should sometimes take second place to the maintenance of monetary stability that so strongly marks *Paper Credit* is still evident in one of Thornton's 1811 speeches to the House of Commons on the *Bullion Report.* There, he explicitly distanced himself from the recommendation of the Bullion Committee, of which he had been a leading member, that convertibility be restored at the 1797 parity within two years. He told the House that it was only because of earlier votes of that body, which he

> ". . .considered to be a vote against any limitation of paper, [that] he had reluctantly joined in the subsequent vote for opening the Bank in two years; - a vote which he should have been glad to have had an opportunity of qualifying, by specifying certain accompanying measures, by which he thought that the apparent severity of it might have been mitigated . . .He had, when in the Bullion Committee, expressed a wish to soften the terms used in that part of the Report which suggested that the restriction should cease in two years" ([1811] 1939, p. 350)

It is generally agreed that a restoration of convertibility at the 1797 parity by 1813 would have required a severe monetary contraction to make it effective, and a fear of the real consequences of sudden monetary contractions, another ever present idea in Thornton's work, was what underlay his reluctance to recommend it. His description of the effects of monetary contraction in *Paper Credit, (*pp.118-120) is too well known to warrant a long discussion here, except to note that it amounts to an informal account of a recognisably quantity-theoretic transmission mechanism for the effects of monetary shocks. In that account, a sudden fall in the money supply creates a "general reluctance to buy" on the part of the merchant, as he tries to restore his money holdings, so that the manufacturer, finding that his "money is going out while no money is coming in" so long as he maintains production, is compelled to "slacken, if not suspend, his operations". Here again, we find Thornton developing analysis that has no parallel in Bagehot's account of such matters.

Conclusions

It has been argued above that, though Thornton and Bagehot held essentially identical opinions about the special place occupied by the Bank of England in the British monetary system, and about the responsibilities that entailed, they differed radically in their explanations of the origins of that special place, and in their views about what that implied for the variables the Bank should be concerned with influencing.

Thornton, as we have seen, was concerned with what we would now call the money supply, broadly defined. He emphasised the role of "paper credit" in the "circulating medium", and the importance of the latter's behaviour in determining prices and the level of real activity. His views on the "naturalness" of central banking were also grounded in this approach. They followed from his intuitive understanding of the existence of economies of scale in the use of money as means of exchange, and particularly of Bank of England liabilities as a means of exchange among other banks. Thornton was, then, a quantity theorist, albeit a subtle one, whose notion of what constituted "money" for purposes of applying that theory went far beyond the stock of currency on which some of his Bullionist contemporaries and Currency School successors would erroneously focus

As to Bagehot, it is striking to recall that, when John Stuart Mill tried to put a little distance between himself and extreme versions of the Banking School doctrines with which he otherwise had considerable sympathy, he insisted that the term "value of money" should be reserved to characterise the purchasing power of money over goods. He labelled as a "misapplication of language" the common practice whereby ". . .the interest of money [is called] . . by a grosser perversion of terms, the value of money" (Mill 1848, 1871, p. 489).[19] In trying to locate Bagehot's ideas in the spectrum of 19th century monetary economics, therefore, it is instructive to recall that the chapter of *Lombard Street* that deals with the determination of the rate of interest is entitled "The Mode in Which the Value of Money is Settled in Lombard Street", and that the "money market" referred to in the book's sub-title is the

[19]Mill's position vis-a-vis the quantity theory was, however, ambivalent, and he was by no means as clear as Thornton had been in showing how the quantity theory should be adapted to a complex monetary system with a multi-asset circulating medium. Mill explicitly cites Thornton in his discussion of the transfer problem, but Neil Skaggs (1995) has shown that Thornton had a pervasive influence on moderate Banking School thought in the 1830s and 40s. An important link here was the insistence of both Thornton and of the Banking School that a much wider aggregate than the stock of currency was relevant to the determination of the price level in an economy with a sophisticated financial system

market for credit. It is also instructive in this context to recall Bagehot's treatment of the question of the monetary standard as being quite distinct from issues raised by banking, and his firmly held view that the provisions of the 1844 Act had settled the former.

Bagehot, in short, was an exponent of the hard-money Banking School ideas that were to be deployed in the 1880s and '90s by the likes of Robert Giffen (eg. 1892a) and J. Laurence Laughlin (eg. 1903) in their defence of the gold standard against bimetallists and other monetary reformers. Thornton, on the other hand, in many respects looked further forward than that, to the quantity theory based approach to stabilisation policy developed by Hawtrey (eg. 1919) and Keynes (eg. 1923) in the 1920s[20]. Both viewpoints can accommodate a role for the central bank as a lender of last resort, as we have seen, but for different reasons and with different purposes in mind. Given that a debate between these two approaches, in which the former had the upper hand, contributed to the paralysis of the Federal Reserve System in the face of the Great Contraction of 1929-33, and given that interest in the behaviour of monetary aggregates is once again at a low ebb among monetary economists and central banks alike, perhaps there is still something to be learned from revisiting the historical origins of these competing doctrines.

[20]My omission of Wicksell's name in this context is not accidental. Though Thornton's development of a "two interest rate" model of inflation is certainly analytically related to Wicksell's (1898) cumulative process analysis, the emphasis that he placed on the active role played by bank liabilities in the economy seems to me to link his work more closely to the tradition of Hawtrey (1919) and Keynes (1923), who stressed the influence of the quantity of money on prices, than to that begun by Wicksell, which centred on the effect of interest rates on saving and investment. For a more detailed discussion of two interest rate models, see Laidler (1999)

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