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Manchester Metropolitan University 2-4 September 2015

## **Francis Horner and the Bullion debates**

Version 2. March 2015

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### **Abstract**

Despite O'Brien's (1995: 228) opinion to the contrary, a search of JSTOR suggests that Horner's contributions to monetary theory have been largely neglected. Fetter (1959) is a notable exception. Horner is largely known as a disseminator of the views of Henry Thornton. The purpose of this paper is to examine the understanding of money and finance expressed in Horner's contributions to the Bullion Debates of the turn of the nineteenth century.

### **1 Introduction**

Henry Thornton published *An Enquiry into the Nature and Effects of the Paper Credit of Great Britain* in 1802, and Francis Horner published his review of it in the inaugural issue of the *Edinburgh Review*, in the same year. The paper will focus on these two publications, primarily the latter. The context within which they were written is as follows. The French Revolution of 1789 led to a series of wars between France and England, the latter in coalition with various European allies. These are generally referred to as the French Revolutionary Wars of 1792 until 1802, and the Napoleonic Wars from 1803 to 1815, though the distinction is rather arbitrary. The economic and social impact of these wars should not be underestimated. They have been described as the first truly world war, and the ratio of casualties to population in England was greater than that in the Great War of 1914-18. An indicator of the economic consequences is the mounting national debt, as shown in Figure 1, below, though clearly the 1792-1815 wars with France were not the only factor.

Figure 1: National debt to GDP ratio

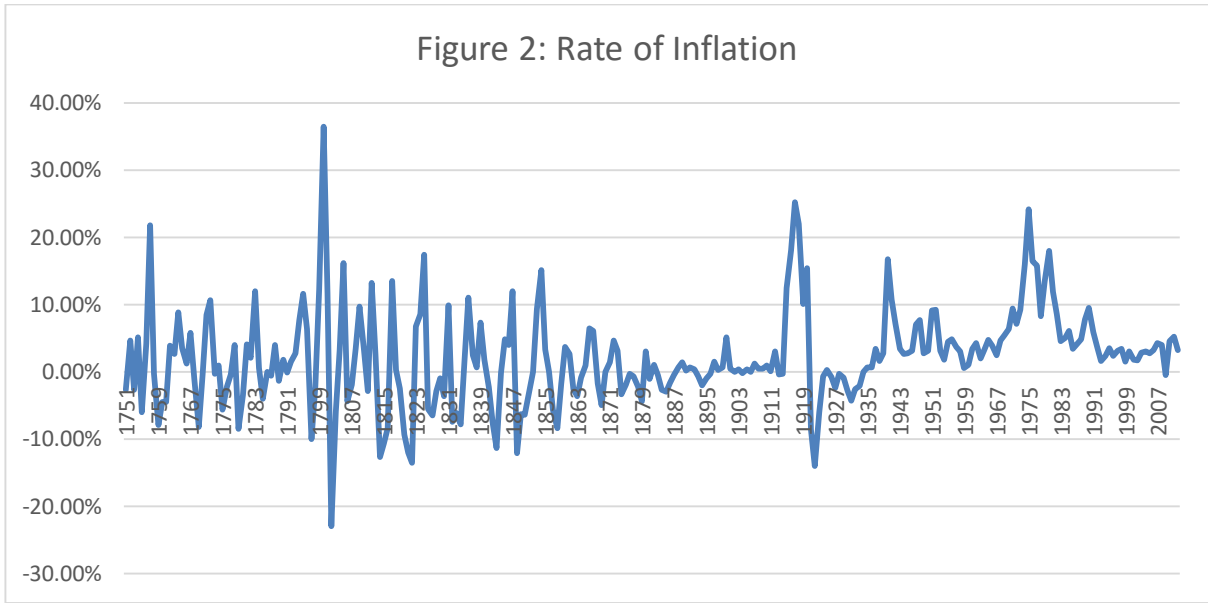


The Bank of England (the Bank) had been founded in 1694 with a national debt of £1.2 mn.

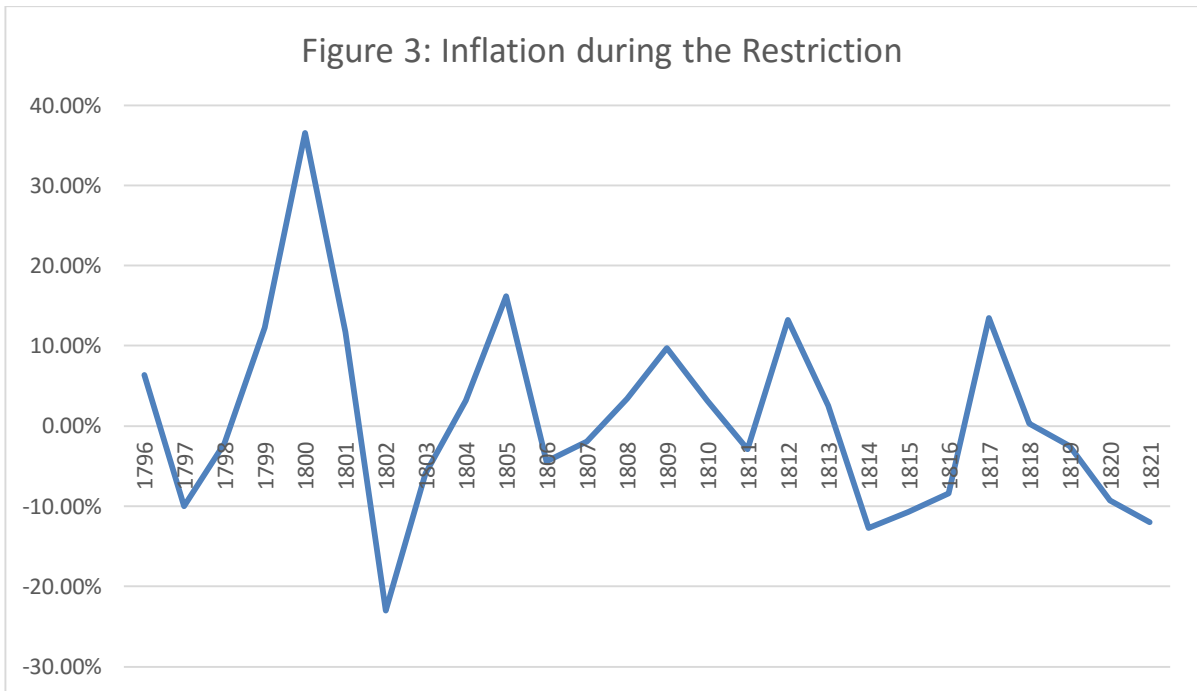
The national debt increased steadily during the eighteenth century, from £12 mn in 1700 to £850 mn by the end of the Napoleonic wars. Those wars put great strain on the nation's finances and in 1797 the drain on the Bank's gold reserves made it necessary to stop paying out gold in exchange for the Bank's notes. This "Restriction Period" (or the "Suspension") lasted until 1821, and during it the Bank issued £1 and £2 notes for the first time to compensate for the shortage of coin. This contributed to a general increase in prices, and there was a severe slump after the wars when financial discipline was restored. (Bank of England, nd: 3)

Until 1797 notes issued by the country banks and the Bank were convertible on demand into gold. Now they were inconvertible. For a history of the events of the Restriction, see Chadha & Newby (2013). The fourteen figures at the end are especially helpful.

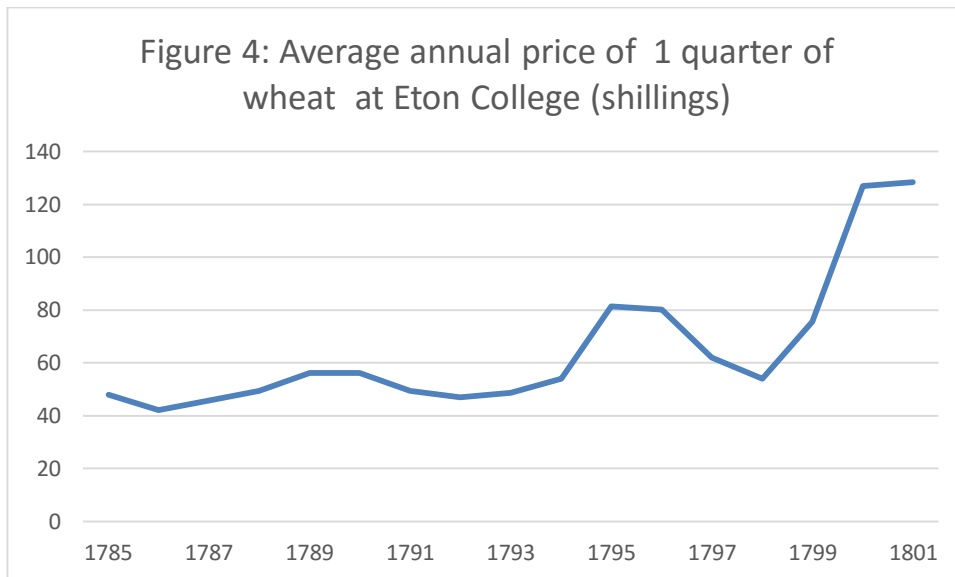
The suspension of convertibility coincided with a period of inflationary volatility, as seen in Figure 2, below. Figure 3 shows the rate of inflation during the Restriction. It is clear that the Restriction period is not so much a period of high inflation, as of high price instability, with years of both positive and negative inflation. In 1800 inflation was 36.5%, in 1801 11.7%, and in 1802 -23.0%. Neither the 1800 nor 1802 figures have been exceeded since. Figure 4 gives an indication of increase in the cost of living in the period immediately preceding the two publications of interest. With this sudden leap in the price of a quarter of wheat from less than 60 to more than 120 shillings, writers of the time would have been justified in fearing substantial inflation. Both the Restriction itself and the inflation and price instability led to an extensive debate about the nature of the currency, the Bullion Debates. It is to these debates that Thornton and Horner were contributing.



Source: Morley (nd).



Source : Morley (nd).



Source: Craik & MacFarlane (1843: 767).

## 2 Bullionism and anti-Bullionism

The Bullion Debates are generally said to have had two sides, the Bullionists and the anti-Bullionists, though this is something of a simplification and once we look at a writer in any depth these categories cease to help very much. Bullionism itself is sometimes said to be, or be descended from, an older doctrine deriving from mercantile writers, such as Gerard de Malynes (1586 - 1641), who are said to have believed that the way to enrich the state was via foreign trade, leading to the accumulation of treasure, principally in the form of bullion. But this is a misreading. The two “bullionisms” – that of the Mercantile writers of a century or two previously, and that of the Classical writers during the Restriction period – really were completely different answers to completely different questions. Both Wikipedia and the *Encyclopædia Britannica* use the term exclusively in the mercantilist sense, while the *OED Online* only reports the Bullion Debate meaning of *bullionist*.

In order to understand the Bullion Debates, we need to know what the significance is, of that much used phrase, “the high price of bullion”. If bullion has a high price vis-à-vis paper money, then paper money is of low value, low purchasing power, vis-à-vis gold. But in the view of these classical economists, the prices of all other commodities will be measured in gold, so the paper currency will have low purchasing power vis-à-vis commodities, ie the general price level is high. So the key question was, did the issue of inconvertible paper pounds lead to high prices? On the other hand, if the “high price of bullion” is one measured in contemporary coins, that is, specie, minted gold, then the conclusion must be that the stated value of the gold coin overestimates its true gold content. This would be the case, for example, if coins were debased, containing a smaller gold content than their nominal value suggested. This latter meaning of the “high price of bullion” was not to the fore during the restriction, though it is not always clear that contemporary writers were wholly clear on this point.

The sides taken in this debate were:

**The bullionists** – those who argued that the paper currency should be completely backed by, and preferably convertible into, gold. These writers tended to base their argument on the quantity theory of money of David Hume. And

**The anti-bullionists** – those who did not believe that backing the paper currency by bullion was either necessary or sufficient to resolve the economic problems claimed to be consequences of the Restriction. These writers tended to follow the “real bills” doctrine of Adam Smith.

### Real bills

The **real bills** doctrine is as follows. Producers would sell to retailers (or there would be a chain of middlemen) on credit, and retailers would then sell the commodity to the consumer. The retailers would be in a position to repay their debt to the producers once they had sold their stock. This takes time. Meanwhile, the producer could be using the capital locked up in the commodity to make more commodities. The terms were usually 91 days – ie the retailer would pay the producer (or the wholesaler, etc) once the items had been sold. The 91 days is agricultural in origin, and relates to medieval quarter-day fairs. Meanwhile the producer holds the retailer’s promise to pay in 91 days – his bill of exchange, generally drawn on the retailer’s bank. The producer can access the funds represented by the bill if he can get someone to discount it. To discount it means to buy it, but not at face value. If its face value is £100, the purchaser might pay £99, giving him a rate of return of £1 per quarter, or 4% pa. The producer accepts this discount in order to be able to get access to the funds now.

As well as bills of exchange, an important instrument mentioned in the debates is the promissory note. This is a promise by agent A to pay £X to agent B on day Y or at sight. It is an arrangement between two parties; a bank note, for example, is a promissory note. A bill of exchange is an instruction by agent A to another agent, agent C, eg one’s bank, to pay agent B £X on day Y or at sight. It is an arrangement between 3 parties; a cheque is a bill of exchange. Both bills and notes can be traded with third and fourth parties – bank notes and cheques can be passed on in exchange for goods and services instead of being redeemed.

The real bills doctrine assumes that there are two classes of activity, productive labour and unproductive, in line with the distinction between these two great categories of labour developed in the *Wealth of Nations*. Productive labour is labour exchanged with capital, unproductive labour is labour exchanged with revenue. The drayman who delivers beer for the brewer performs productive labour; when he drives the brewer and his family to church on Sunday he performs unproductive labour. Productive labour leads to a saleable commodity – the productive labourer adds value to the resources he uses, replacing his own wages and adding a surplus. Bills associated with the production of such commodities are financing *real* economic activity. Bills associated with other activities, such as consumption and speculation or gambling, do not facilitate real output, and so are potentially inflationary. So real bills supporters believe that banks should only discount real bills. This makes the supply of money responsive to demand from the productive sector of the economy. It is an *endogenous* theory of money. It is difficult, however, to detect which bills are in

fact 'real'. So as a proxy banks used short-term, self-liquidating bills of high quality, ie those thought unlikely to default.

### The Quantity Theory of Money

The QTM is an *exogenous* theory of money. It may be summarised in the equation of exchange:

$$MV = PT$$

the quantity of money		the average price of goods exchanged
times	=	times
the velocity of circulation of money		the number of transactions

Velocity ( $V$ ) and transactions ( $T$ ) are held to be at least relatively constant and the flow of causation runs from money ( $M$ ) to prices ( $P$ ). Any proportionate increase in money then leads to an exactly equiproportionate increase in the price level. The value of these propositions is of course still a live issue today.

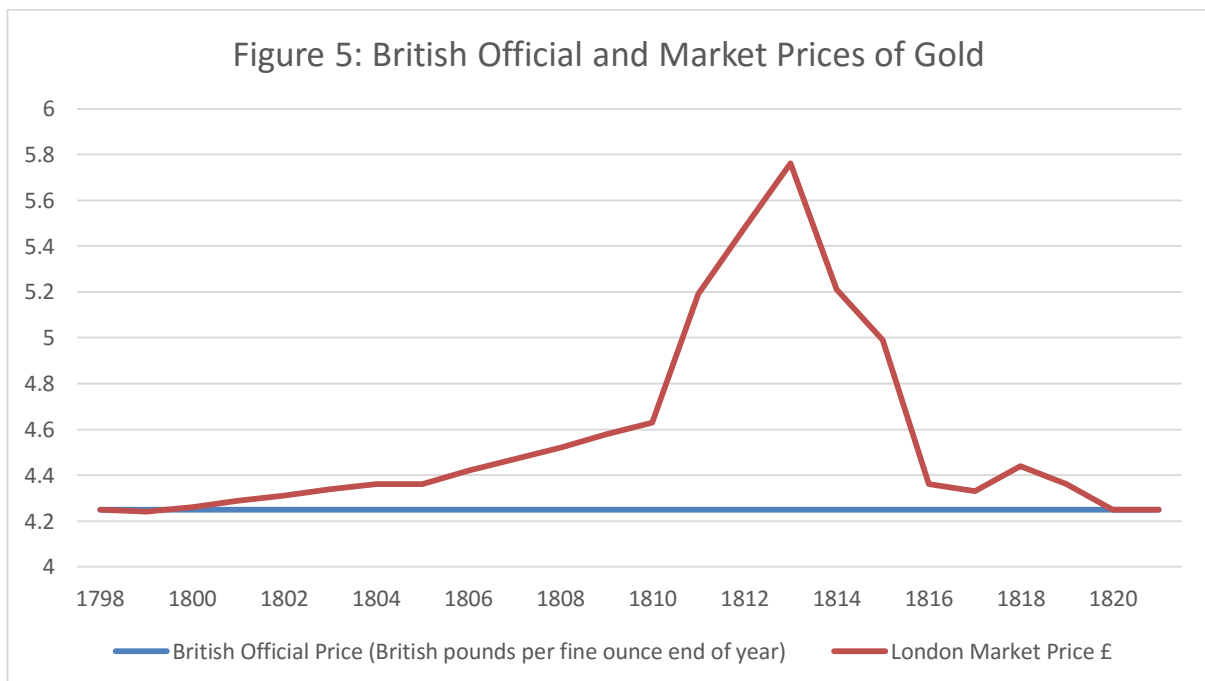
Both sides in the debate saw the need to restrict the issue of paper currency. The question was, by which rule? Should we have every £1 in paper money backed by gold, or should we permit the discount of as many real bills as may be presented to the Bank by its customers?

Before the Restriction, bank practice was passively to accommodate demand by discounting high-quality bills. But they were constrained in the value of the notes they could issue: if they issued so many that their value fell, it would be in the interest of the holders to exchange them for gold at face value. If the banks continued to issue new money, they would be subject to a drain on their gold reserves and would risk bankruptcy. This was referred to as an "internal drain". The mere fact that notes were convertible meant that their value could not fall below face-value as long as holders believed that convertibility would be maintained. To maintain that confidence, banks were obliged to restrain their issue of notes so as not to damage their gold reserves, and to keep a reserve of gold against the possibility of sudden demand for payment in cash. After the Restriction, however, there was no such limit on the Bank of England's activities. The argument of the bullionists was that if the paper currency was not convertible, the only way to prevent inflation would be to increase or decrease the quantity of bills discounted, ie the money supply, to bring the market price of bullion into parity with the face value of the banknotes: £1 for 123¼ grains of 22 carat gold. To help gain an idea of the quantity of bills of exchange, or commercial paper, being discounted at this time Canaan reports that "the average amount of commercial paper under discount had increased from under 3 millions [of pounds sterling] in 1795 and just over 3½ in 1796 to 15½ in 1809. In 1810, the year of the Bullion Report, it was further up to over 20 millions, after which it fell like a stone" (Canaan, 1919: xxxviii).



The literature always also mentions the foreign exchanges – but that is both redundant and impossible. You cannot fix the price of the currency simultaneously in two different markets which can move apart. The foreign exchange can only give *evidence* to take into account alongside evidence from the market for gold bullion.

It will be helpful for the reader to review Figure 5, below, which shows the premium on bullion. Only the period 1798 to 1820 is given, as outside this period the two lines, the market price of gold and the official price of gold, are the same for many decades in both directions. With convertibility they cannot drift apart. What this diagram tells us is as follows – ignoring for simplicity the replacement of guineas by sovereigns which took place at this time. In this period a gold sovereign, worth 20 shillings by definition, had a weight of 123.3 grains. This gives us an implicit official price of £4.247727 per fine ounce. But to buy a fine ounce in the bullion market would cost you nearly £5.8 in paper money at its peak. We can see that there was a slight premium on bullion from the start of the Restriction and during the French Revolutionary Wars. This then picked up and became marked during the later stages of the Napoleonic Wars. The premium then fell rapidly, primarily because of expectations that the war would soon be over, and because of the concomitant expectation that convertibility would soon be resumed. Anyone holding a paper pound who chose to buy bullion with it today at £5 or more would risk losing the opportunity of exchanging it for gold coin tomorrow at £4.25 per fine ounce, making a substantial loss.



Source: *MeasuringWorth.com*.

Another issue relevant to the debate concerns the discount rate – the rate of interest charged on the money lent by buying bills of exchange. A restriction of the quantity of bills discounted may be

achieved either by rationing, by imposing a quantity constraint, or by price, via changes in the discount rate. Setting a discount rate means accepting the quantity of bills which is then forthcoming, and setting a quantity of bills to be discounted implies accepting the corresponding discount rate. The one implies the other: there are not enough degrees of freedom to do both independently. If the latter is used, then the bank must adjust the discount rate until exactly the quantity of bills that it wants to discount is forthcoming. The higher the rate, the lower the quantity of bills discounted, as the holders of the bills, who want them discounted, are forced to pay a higher price for doing so. The Bank was prevented from charging more than 5% by the medieval usury laws still in force at the time, but it did charge 5%, a very high rate for the time, and this was said by some, such as Tooke, to be the reason things did not go even more awry. Canaan, however, says that the reason for this relative stability was that everyone expected the “Resumption” of convertibility at short notice, and therefore were careful to maintain gold stocks in reserve. There was also the recent French experience of the *assignats* to cool the desire for dramatic increases in the money supply.

In the remainder of the paper we review some aspects of the contributions of two major participants in the debates, Henry Thornton and Francis Horner, focusing on their understanding of the velocity of money. Both went on to become leading members of the 1810 parliamentary “Select Committee on the High Price of Bullion”, which indeed was chaired by Horner.

### **3 Henry Thornton’s *Enquiry***

The ideas expressed in Henry Thornton’s *An Enquiry into the Nature and Effects of the Paper Credit of Great Britain*, published in 1802, and re-published (Thornton, 1939) with an Introduction by Hayek, in 1939, have been regarded as constituting “the most important monetary theory of his era” (Arnon, 2009: 549). However, it has not always been clear what it was that Thornton was saying, and a range of interpretations have emerged. That the first half is on the dangers of too little money, and the second on the dangers of too much, has given rise to multiple views on his message:

Murphy argues that there were three, not two, Thorntons. The first two, as suggested by Hayek and Hicks, criticize deflation in the early parts of the work and inflation in the latter parts. Murphy (2003, 447–51) adds a third Thornton: a supporter of non-metallic money. Skaggs’s (2005) comment on Murphy agrees with Murphy’s description of the first Thornton, the antideflationist, while disagreeing with him on the second and third. In Skaggs’s view, there is only one [Thornton]. (Arnon, 2009: 548)

(We should note a terminological point before continuing: “inflation” here and for some time to come refers to an increase in the money supply, whether or not it leads to any change in prices – while the modern meaning is a sustained increase in prices, whether or not associated with any change in the money supply.) For Arnon (2009: 549), Thornton is “a moderate anti-bullionist: one who supported the Restriction but rejected the real bills doctrine.” His association with the bullionists is due to his participation in the Bullion Committee (1810). He believed inconvertibility could have been maintained, had the Bank’s directors understood what they were doing. He

favoured a non-metallic, inconvertible currency with a discretionary monetary policy implemented by the Bank of England. Like the contributors to Wikipedia, Screpanti & Zamagni (2005: 121) find Thornton to be a bullionist – and “undoubtedly the most acute monetary theorist of the period”.

Thornton criticises Smithian monetary theory (Arnon, 2009: 551f). Smith assumes convertibility, and that banks only discount real bills. For Smith, real bills are well-defined, easy to spot, and exist in limited quantities: it is in the self-interest of each bank only to discount real bills. Smith applies the invisible hand to banking. Thornton, however, argues that “fictitious bills” can be created by coordinated action of merchants. For example, two merchants could write such bills for each other – each is both borrower and lender. The opposite and completely offsetting flows at expiry mean that each party can from now on ignore the bills. Each bill is backed not by real commodities waiting to be sold, but by the other bill. But the bills can be discounted at the Bank. The Bank has lent to each of them without any real activity being undertaken. Hence real and fictitious bills cannot be distinguished:

To determine what bills are fictitious, or bills of accommodation, and what are real, is often a point of difficulty. Even the drawers and remitters themselves frequently either do not know, or do not take the trouble to reflect, whether the bills ought more properly to be considered as of one class or the other; and the private discounters, or banker, to whom they are offered, still more frequently finds the credit of the bills to be the only rule which it is possible to follow in judging whether he ought to discount them. (Thornton, 1939: 89)

Thornton refutes Smith’s view that the use of fictitious bills will prove ruinous to those who, acting in their self-interest, discount them (Arnon, 2009: 552). “Smith argues that the rise of fractional reserves frees resources by supplying the circulation with a cheap medium (notes) while keeping less gold in reserve than had to be kept without the service of banks. But gold and notes are not perfect substitutes” (Arnon, 2009: 552). That is, according to Arnon, Thornton’s point is that gold and notes have different velocities. And not just notes, but “bills [too] are part of the circulating medium and perform better than notes in that capacity”. It is both critically important and very modern to realise (a) that credit, in the form of bills, is a part of the means of exchange, that is, of the money supply, and not just notes and coin (coin, here, of course, is specie, not modern token coins), and (b) that different means of exchange – specie, notes, bills of exchange – have different velocities, and that that matters.

Thornton quotes Smith:

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. (WN: II.ii.48, Thornton’s emphasis)

Thus, the commerce being supposed the same, the demand for money will be same, according to Smith. If more money is in circulation than is required to finance the transactions actually taking place, it will drop out of circulation. Gold will be sent abroad, that is, there will be an “external

drain". Paper cannot be sent abroad, so the holders of the excess paper notes will present them at the banks to be converted into gold, which can then be exported. It will therefore be in the interest of the bank to limit its issuance of paper money – otherwise it has to hold a greater quantity of reserves, and replenish them faster, both of which are expensive, for example, in terms of lost interest on the reserves held. Hence banks have an interest in only discounting real bills, which correspond to real output, and can therefore be relied upon not to increase the currency above what is required, while fictitious bills would increase the currency beyond the demand for money, which demand is related to *real* production. That is Smith's view.

As Arnon says

According to Thornton, it is the effect of gold coins and notes on the economy—not their quantity—at which one should look. Their effect depends on their velocities, the speed at which mediums change hands, which are not identical for each medium. Neither are velocities constant over time, since they depend on many economic circumstances. Hence, Smith's simplistic comparison of paper money and gold is misleading ... In the act of circulation, when payments are made, mediums other than gold and notes can be used. These credit and debt mediums, based, as we have seen before, on confidence, can perform the role of making payments. Thus, both bills of exchange and bank deposits should be considered part of the mediums in circulation. (Arnon, 2009: 553)

For Thornton

The error of Dr. Smith, then, is this:—he represents the whole paper, which can easily circulate when there are no guineas, to be the same in quantity with the guineas which would circulate if there were no paper; whereas, it is the quantity not of 'the thing which circulates,' that is, of the thing which is capable of circulation, but of the actual circulation which should rather be spoken of as the same in both cases. (Thornton, 1939: 49)

Thornton thus has a profound insight into the relationship between specie, notes and other media such as bills, as components of the money supply, an understanding which by and large has been occluded in the mainstream for much of the time since he was writing. Thornton's insight, however, is partially obscured by an unclear writing style, which is the principal complaint raised by Horner, and forms the motivation for Horner's "abstract", as we shall see later. Nevertheless, we may discern that Thornton grasps that it is the product of the circulating medium and its velocity which is of interest, that the definition of circulating medium must be drawn far more broadly than is generally realised, and that the resulting range of velocities has also to be taken into account.

### **"Monetary theories of credit" and "credit theories of money"**

In Arnon's view Thornton's approach is an instance of what Schumpeter later came to refer to as a 'credit theory of money':

Thornton recognizes that many different assets and debts can be used in payments and exchange. His criticism of Smith leads him to break from conventional “monetary theories of credit” and is an early expression of what Schumpeter (1954, 722–28) called “credit theories of money.” (Arnon, 2009: 554)

Schumpeter (1954: 717) describes the text-book approach or “monetary theories of credit”, which start from money and build a theory of credit on it, and then contrasts with it a “credit theory of money”:

It may be more useful ... to look upon capitalist finance as a clearing system that cancels claims and debts and carries forward the differences – so that ‘money’ payments come in only as a special case without any particularly fundamental importance.” (Schumpeter, 1954: 686)

What is the significance of these insights expressed by Thornton, and, as we shall see, Horner? The significance is that monetary theory since Thornton’s time has often been vitiated by a misunderstanding of the quantity theory of money. Keynes (1973: 208-9) points out that failure to take on board the “propensity to hoard” leads to a fatally flawed conception of the overall velocity of money in the economy. The velocity of hoards by definition is zero, since it is not driving any transactions at all, so the aggregate velocity will depend on the weighted average of the hoards, or idle balances, and the active balances that finance transactions. With no change whatsoever in the quantity of outstanding money, it is possible for overall velocity to change dramatically if the shares of idle and active balances change, for example, in response to a change in the interest rate. Theorists adopting “the quantity theory of money in its traditional form”, however, ignore this, rendering that theory, in Keynes’s view, “a truism which holds in all circumstances, though without significance”. Ultimately, such a standpoint is intimately linked with Say’s Law, and it is by breaking from it that Keynes is able to develop his theory of economic dysfunction. So it is of great interest to see how the observers of monetary phenomena of two centuries ago disaggregated the money supply and ascribed to its various components, not merely different, but indeed varying, velocities. When Thornton writes that “it is the quantity not of ‘the thing which circulates,’ that is, of the thing which is capable of circulation, but of the actual circulation which should rather be spoken of as the same in both cases”, this unhelpful formulation obscures Thornton’s insight that “the thing which is capable of circulation” – whatever it is that in the prevailing circumstances acts as money, may or may not actually be circulating. The actual circulation may be the same in two different situations, if the form of money which is used as means of exchange, which is actually circulating, that is, is not being held as hoards, multiplied by its velocity, is the same in each case. The same quantity of the two different media – say specie, or notes, or bills – will **not** produce the same circulation, as they will have different velocities. The standpoint of Thornton and Horner is thus more nuanced, and their insight more penetrating, than that of the bulk of the profession over the subsequent two centuries.

#### 4 Horner's review of Thornton's *Enquiry*

Horner's review (Horner, 1802) of Thornton's (1802) *Enquiry into the Nature and Effects of the Paper Credit* is contained in the founding issue of "*The Edinburgh Review, or Critical Journal: For Oct. 1802.....Jan. 1803. To be continued quarterly*", as it promised on the front cover. Confusingly, the date given at the bottom of the first recto is 1803, though Horner's article is normally dated to 1802 in the literature, and only the second issue of the first volume is allocated to 1803. The same issue contains a review by Horner of *The Utility of Country Banks Considered*, which is dismissed by Horner as "largely a poor plagiarism of Smith 1776 and Hume 1752" by the anonymous author, and another, of *An Inquiry into the Causes and Effects of Emigration*, by Alexander Irvine, who, according to Horner, "has preferred fine writing to inquiry; and his reader, who looks for facts, will in vain peruse a tedious volume of eloquence" (SciPer, nd). The second issue appeared in January 1803, and also carried an article by Horner, a (highly critical) Review of *Principes d'économie politique*, by Nicolas F Canard.

Horner begins his review of Thornton's book by commending the input of business men – their knowledge of detail and 'minute accuracy' – as a necessary basis for the separate and "more liberal task of generalizing these into principles", the theorising of commercial philosophers (Horner, 1802: 172). (*Liberal* in this context, of course, means *befitting a gentleman*.) Horner argues that theoretical developments are prompted by what happens in the market, so that we learn from experience and "every period of dearth has contributed in some degree to alleviate subsequent years of scarcity, by the instruction which it yielded". He gives the example of the South Sea bubble prompting numerous pamphlets on "foreign commerce", and that of "the embarrassments, that were occasioned in the reign of King William by the reformation of the coin" as the stimulus to an understanding of metallic circulation. The reference here is to the great recoinage of 1696-98 under William III, and the subsequent labours of Isaac Newton as first Warden (1696-1726), and then Master (1699-1726), of the Royal Mint, attempting to clear up the resulting mess, under William and in the subsequent reigns of Anne, and George I. The issue of the day for Horner is "that curious system, by the operation of which the use of precious coin is now almost superseded", which system "had remained in a great measure unknown to all but the bankers and traders of London, until the suspension of cash payments at the Bank of England" (Horner, 1802: 172). It is not simply that we have the existing system, subject to a temporary exception, the Restriction, but rather that the Restriction has exposed a new system, and one which we are likely to see in one form or another for an extended period in the future. It is notable, however, that the Restriction was not utterly unprecedented: apart from various experiments overseas, convertibility at the Bank of England was briefly suspended in 1696-97, during the re-coinage just mentioned, and in 1745, during the Jacobite invasion (Chadha & Newby, 2013: 2).

For Horner, the most valuable of these publications is without question that of Thornton. However, he considers it to be very poorly written. The problems arise from a clash of intentions between a tract for the times and a general treatise. Thornton says that his original intention

was merely to expose some popular errors which related chiefly to the suspension of the cash payments of the Bank of England, and to the influence of our paper currency on the price of provisions. But in pursuing his purpose, many questions occurred which it seemed important to discuss, partly on account of their having some bearing on the topics under

consideration, and partly because they appeared to be of general importance, and had either been left unexplained, or had been inaccurately stated by those English writers who have treated of paper credit. This work has therefore assumed, in some degree, the character of a general treatise. (Thornton, 1939: 34)

Horner regrets that this transformation into a general treatise was, in Horner's view, not fully effected. So he sets himself the task of forming "an abstract of its principal contents", addressing

*"first,* The principles which he [Thornton] has adopted on the general theory of paper credit;

*"secondly,* His account of that system of credit and of paper-money which is established in this country;

*"thirdly,* His explanation of the difficulties to which the Bank of England was subjected in 1797 ; and

*"fourthly,* His opinion with regard to the influence of our present paper currency upon the present state of prices."

Taking these contents in turn, it is clear from Section 1, on the general theory of paper credit, that both Thornton and Horner adopt a credit theory of money:

The origin, and the solid foundation of every system of paper-money, Mr Thornton has correctly placed in that credit, which subsists among commercial men with regard to their mercantile transactions. (Horner, 1802)

Promissory notes and bills of exchange... were soon discovered to be susceptible of a more extended use, than that of recovering debts to the original creditor. They admitted, like other instruments of debt, and more easily than most others, of being transferred; and, in consequence of this facility, they came gradually to circulate as a representative of value, that is, as an effective medium of exchange, in almost all payments of a large amount. (Horner, 1802)

Thus notes replaced an expensive medium, specie, with a cheap one, paper. The contemporary view, as exemplified by Boyd, was that bills of exchange are objects of circulation, not "the circulator". But for Horner and Thornton "no definite boundary can be marked between the circulating medium and the commodities of which it facilitates the exchange". For Thornton

All negotiable paper is, by its form, the representative of value; and is therefore qualified, more or less perfectly, according to its varieties of form, to serve the purposes of money. It is convertible into cash; and on the faith of this convertibility it passes immediately as cash. The precious metals themselves do not pass as money, except on the faith of their convertibility into commodities. (Horner, 1802)

Horner criticises Thornton for not clearly stating whether, as "all other writers" believed, "the convertibility of paper into specie is the basis upon which that system must be founded". That the Restriction had lasted for more than five years since 1797 "without any depreciation of the paper from a failure of confidence, is a fact which has falsified all reasonable prediction, and forms an exception to the most confident maxims of all former economists" (Horner, 1802). The Suspension

(or Restriction) has thus revealed the falsity of the view that the system is founded on the convertibility of paper money into gold coin:

The convertibility of paper into specie, without delay and without loss, may be necessary in two respects: to maintain the credit of the paper, by precluding that depreciation which proceeds from a failure of confidence; and to preserve the value of the paper from that depreciation, which originates in an excess of circulating medium. The necessity of immediate access to gold, for the credit of the paper, may be superseded, it appears, by a full persuasion on the part of the public that the paper is secured by ample funds. But this can have no effect in restricting the quantity, which is, on the contrary, encouraged by this very confidence of the public. Mr Thornton, accordingly, expresses his opinion, that gold coin is the standard by which the value of all paper money must be regulated; and that, in order to maintain an uniformity between them, there should always be a considerable fund of bullion in the country, and a certain degree of interchange of the paper for precious coin. (Horner, 1802)

Horner regards this as the foundation on which Thornton's work rests. The issuance of paper money must thus be made with an eye on the price of bullion, and Horner and Thornton thus side unambiguously with the Bullionists on this core issue.

"Another part of the theory of money" according to Horner is "the different effects of a quick or a slow circulation." In other words: **velocity matters**, and failure to recognise this has caused significant errors on the part of previous writers: "Montesquieu and Hume fell into several mistakes, from not adverting to the degree in which the representative power of money is augmented, by a more rapid transmission".

The quantity of money, necessary for performing a certain number of exchanges in a certain time, may be considered as nearly in the inverse ratio of its velocity of circulation. Whatever, therefore, tends to accelerate the general rate, contributes, so long as the number of exchanges remains unaugmented, to economize the necessary quantity. And if, by the operation of any cause, its movement be retarded, the want of an additional quantity will be felt. From the same proposition it likewise follows, that, if one kind of money is susceptible of a more rapid circulation than another, a smaller quantity will be required of the former than of the latter, to carry on a given number of exchanges in a given time. (Horner, 1802)

Different moneys have different velocities. But furthermore, there is a *cycle* in velocity:

in a commercial country, whatever the circulating medium consists of, it is apt to vary in its rate of circulation. A high and prosperous state of mercantile confidence quickens it; and it is apt to be retarded, during the intervals of distrust and alarm. Every merchant, who lies under pecuniary engagements, must not only arrange the punctual fulfilment of these, but must reserve a farther provision against contingencies. During an interval of alarm, he of course makes this reserve rather greater than in ordinary times; and at a period of great confidence, he ventures to keep it rather less. (Horner, 1802)

In prosperity, smaller reserves are thought to be required, so the aggregate velocity is greater, while in "intervals of alarm" greater reserves of money are required – there is greater demand for money



for hoards relative to the demand for money for transactions. So aggregate velocity is lower. Aggregate velocity is equal to the weighted average of the velocities of active and idle balances. If there is a shift between the weights the aggregate velocity changes. The consequence is that spontaneous movements in the circulating medium are **procyclical**: they tend to increase the variability of output:

The austere policies of the banks of Amsterdam and Hamburg contrasted with the free-wheeling trade of the Bank of England. The Old Lady of Threadneedle [Street] was a private institution having a monopoly on the right to issue banknotes in the City of London and within a 60-mile radius. With an eye always to profits, and unfettered by convertibility, the Bank conducted a procyclical policy; that is, its policies made the fluctuations of the business cycle more extreme. The Bank extended credit liberally in prosperous times, causing inflation. Yet during financial crises, it did just the opposite. The Bank reduced its trade bills and notes under discount from £19.1 million to £6.5 million during the depression of 1816. In the panic of 1793, and again in 1825, the Bank refused all credit. When pressed by members of Parliament, the Bank's directors rejected outright and repeatedly a rôle for the Bank as lender of last resort, and instead looked to the Exchequer for support (Davis, 2005: 14).

Different media have different velocities, even in the case of different parts of the paper money:

some kinds of paper circulate more slowly than others. Bills of exchange, for example, bear interest, and become daily more valuable to the holder. Bank notes, on the contrary, like guineas, occasion a daily loss to the possessor, because no interest accrues. There is thus a reason for detaining the one, and for parting with the other as soon as possible. Commercial people will endeavour to keep their necessary provision for future payments, rather in bills, than in bank notes. (Horner, 1802)

That is, there is a different opportunity cost of holding one rather than the other. Note that a desire to hold bills reduces the discount, and hence the rate of interest. A desire to hold notes increases it.

Horner certainly does support the quantity theory of money, subject to the caveats just mentioned. Discussing the effect of the quantity of circulating medium on the price of commodities, he says that "there is no difference between a currency of paper and one consisting of the precious metals"; "if the quantity of circulating medium is permanently augmented, without a corresponding augmentation of internal trade, a rise will unavoidably take place in the price of exchangeable articles". It is on this basis that he criticises Smith's attempt to refute Hume. "Dr Smith, our readers will recollect, has refuted Mr Hume's notion, that paper-money raises prices, by referring to what he considers as a general fact in the theory of circulation; that every addition of paper to the currency displaces an equivalent quantity of gold."

The quantity of goods in the market (he [Smith] says) being precisely the same after the paper is issued as before, the same quantity of money will be sufficient to circulate them: the channel of circulation remaining precisely the same, whatever is poured into it beyond the sum that is sufficient to fill it, cannot run in it, but must overflow: the sum that overflows is too valuable to lie unemployed at home; it will therefore be sent abroad; and, as the paper cannot go abroad, the gold will be exported.

Mr Thornton has justly remarked, that the channel of circulation can never be said to be full, because employment is still afforded to a larger quantity of circulating medium by means of an advanced price of goods. "This advanced price of goods is the same thing as a reduced price of coin: the coin, therefore, in consequence of its reduced price, is carried out of the country for the sake of obtaining for it a better market." (Horner, 1802, quoting Thornton, 1802)

According to Thornton and Horner, Smith omitted the transmission mechanism of a change in the price level: while they agreed that additional paper currency would lead to the export of specie, the reason in their view was that an increase in paper would raise prices, reducing the domestic value of specie below its purchasing power abroad, leading to its export to wherever its purchasing power might be higher. Thornton, however, suggests three possible changes which might offset this process:

(a) the substitution of paper for gold might send gold abroad – but then it would augment the world supply of gold. In other words, the United Kingdom is not small relative to the world economy. The increase in the quantity of gold abroad then drives up world prices.

(b) paper is a cheaper means than gold, so this will reduce prices. Merchants have to include all their costs in the price of goods, and the costs of circulation are part of this.

(c) paper gives rise to greater production and competition, so lowering prices. This implies that there are unexploited economies of scale – increasing the level of output will reduce its cost.

Saying that "in this instance, as in every other, it is the true interest of the consumer that merchants should be permitted to adopt their own plans of economy", Horner here appears to apply a Smithian, invisible-hand approach to the political economy of trade which, as we will see shortly, is inconsistent with his prescription for counter-cyclical monetary policy.

For Horner, additional paper money which does *not* displace gold *is* inflationary:

Although, with these modifications, he [Thornton] admits the position of Dr Smith, that successive additions of paper to the currency will successively displace equivalent portions of gold, this must evidently cease to be true when the circulating medium already consists almost entirely of paper. In such circumstances the successive augmentations that may take place, are not compensated by any corresponding diminution in another part of the circulation; and the rise of prices, that immediately ensues, is not reduced by a subsequent exportation of gold. (Horner, 1802)

The consequence of such additions to the circulation of paper notes, which does not displace specie, will be that "the market price of gold bullion may thus come to exceed that price which was adopted, under the ancient system, by the regulations of the mint." In other words, there will be a depreciation of purchasing power of the currency.

In Section 2, on the system of credit and of paper-money, Horner discusses the issues of monetary policy and convertibility. "The issue of [the Bank's] own notes is restricted, in ordinary times, by the obligation to convert them into specie. The quantity of country paper [ie other banks' notes], even

during the present times, is limited by its accustomed convertibility into the notes of the Bank of England.”

If a particular country banker is imprudent enough to issue an extraordinary quantity of paper, while that of the Bank of England does not exceed the demands of London circulation, a local rise of prices will be produced within the district of that country paper, but prices in London will remain as before. In this situation, the holders of country paper, in order that they may purchase goods where they are cheaper, will return that paper to the banker, demanding in return Bank of England notes, or at least bills upon London. The excess of his notes will thus be continually returned upon the country banker, and he will at length find himself under the necessity of limiting his issue to that quantity, which the circulation of his own district can absorb. The quantity of Bank of England paper may thus be said to regulate the quantity of that which is issued by the country banks. (Horner, 1802)

This is a description of the gold standard in microcosm, with BoE notes acting as gold.

Similarly

Whenever the Bank of England paper happens to exceed what is required for the purposes of London circulation, the country paper may become excessive in the same degree. And such an excess of Bank of England paper may be produced, either by a diminution in the number of payments, while that of notes remains undiminished; or by whatever has a tendency, while the number of payments remains unaugmented, to augment the number or the effective power of the notes in circulation.

From the principles which Thornton has established, Horner derives the necessary for an expansionary monetary policy in times of distress. Distress leads to hoarding, which increases demand for money, and a fall in the effective circulation of the means of exchange:

How solidly soever the foundations of mercantile credit may be laid, both in public confidence and in the real security of responsible funds, it is apt to be shaken by that consternation which is apt to spread, after a succession of commercial bankruptcies, or during the alarms of war. At such a period, it has been particularly found, that the notes of country banks, which chiefly circulate among consumers and petty dealers, have fallen into distrust with that large portion of the people. If one bank should fail, a run upon all those in the neighbourhood immediately takes place, and diffuses general distress. Such of the country bankers, as are most prudent, adopt a preventive caution, by limiting, of their own accord, the issue of their notes; and all of them are forced to enlarge that fund of cash, with which they may be prepared to answer demands. In consequence of these operations, an additional quantity of gold and of Bank of England notes must be carried down from London into the country, both to supply that void in the channel of circulation from which the discredited country notes have been thrown out, and to form that additional reserve which the bankers must keep in their coffers. But the money-dealers and traders of the capital will, in some degree, participate that consternation to which the whole country has given way: it will appear to them also a necessary precaution, that they should enlarge their fund against

contingencies, and keep a larger supply of Bank of England notes than they find necessary in ordinary times. By these multiplied hoards, as well as by the quantity of cash sent into the country, the circulating money of the metropolis must suffer a very great diminution. But it was previously no more than sufficient to effect the necessary payments; and on the punctual discharge of these, the whole commercial credit of the kingdom depends. Unless the Bank of England, therefore, which is the source of circulating medium, shall, in these circumstances, consent to enlarge its issue of paper, a general subversion and ruin of that credit may take place; but if it adopts such a measure seasonably, and in the proportion which the new demands of the circulation require, the mischief may cease after a slight and temporary inconvenience. Beside this remedial policy, which can only be adopted after the evil has been felt to some extent, that body, in order to be prepared against such an event, 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)

Horner thus sees a reversal between the prudent policy of the individual bank, and that of the Bank of England, representing the system as a whole. At this time of distress, when every bank is increasing the size of its hoards, the Bank of England should “consent to enlarge its issue of paper”. This is very much of interest, since, as well as constituting an early recommendation of countercyclical monetary policy, since paper money was at that time injected into the economy only by granting loans (including discounting bills), it therefore constitutes an early call for a central bank to act as the lender of last resort.

For Horner it had been difficult for the Bank of England to play this rôle, however, because of confusion, on the part of its directors, as to the interest in which they should be acting. There is an institutional problem:

to enlarge the issue of their paper, at the very time that their fund of gold is diminishing, is a measure, which would confessedly be imprudent in every inferior establishment, and which on that account the directors of the great bank [ie the Bank of England] have not always perceived that they were warranted, by the peculiarity of their situation, to adopt, as the real means of checking the drain of their gold. (Horner, 1802)

What is required by the part is the very opposite of what is required of the representative of the whole. The small bank checks the drain of its gold by contracting its paper money supply; the Bank of England by expanding it. Horner says the Bank is compensated for this obligation, and the need to keep a store of gold to allow it to do so, by the benefits it gains as a monopoly in other directions.

It is worth pointing out, to underline the penetration of Horner’s analysis, that he was writing **before** the deviation of the market price of gold from the official price which occurs during the Napoleonic Wars. As Figure 5 shows, the deviation of market price from official price of gold that was to come had hardly started. That deviation was probably associated with both (a) the Restriction itself, and (b) the rising national debt due to the French Revolutionary Wars, and the Napoleonic Wars.

The consequence of this tension between the roles of “inferior” banks and the central bank is an institutional problem:

If the Bank of England must now be considered as a national establishment, not merely influencing, by the superior magnitude of its capital, the state of commercial circulation, but guiding its movements according to views of public policy, an important revolution has taken place since the first erection of that corporation as a banking establishment. (Horner, 1802)

There are thus two interests at work in the management of the Bank: “In the official character of that Board, some of the functions of sovereignty are united to those of a trader; and the opportunities of banking profits are blended with a trust and charge of the public interest.” This tension could in the future potentially lead either to greater bureaucratic or to greater democratic control over the Bank: “Perhaps, an unbounded field will be opened for the extension of ministerial influence. Perhaps, an unexpected control may be gained to the people, over the views and measures of the executive” (Horner, 1802).

## **5 Conclusion**

This paper has argued that Francis Horner’s writings on economic topics at the beginning of the 19<sup>th</sup> century are worthy of attention today. Horner’s early death in 1817 at the age of 38 from tuberculosis deprived the discipline of an original thinker. His potential was perhaps more recognised at the time than it is today: he was cited as a possible future Chancellor, and it was to replace him in Parliament that Ricardo was urged to become an MP (Winch, 1987: 4387). His contribution is largely made in the form of a popularisation of Thornton’s views, and it is not always clear what is Thornton’s and what is his own contribution. Nevertheless it is clear that he has a very nuanced and incisive view of the components of the money supply and of their different and varying velocities; in particular, he has an understanding of the importance of hoards which foreshadows Keynes’s analysis more than a century later. He understands the difference between the appropriate response to financial distress at the micro and macro levels: the individual bank has to curtail its issue of notes, while the Bank, acting on behalf of the whole, should expand its issue. Following his recommendation of counter-cyclical monetary policy, he makes some acute observations on the institutional question of the status of the Bank of England, pointing towards its future status as a central bank.

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