I Of Gold and Paper Money

In which I consider the role of money as a means of payment, store of value and medium of exchange. To help fix a few ideas I outline a number of quantitative and qualitative experiences of monetary management. Successful regimes, that facilitate the roles, have sprung up in a variety of surprising places, and been sustained with state (centralised) interventions. Although the link between state and money, and its standard of identity and account may be clear, particularly in earlier stages of economic development, the extent to which the state is widely felt to hold responsibility for ‘sound money’ is less clear in modern democracies, where there are many other public responsibilities implying an ongoing set of issues.

Money is not, properly speaking, one of the subjects of commerce; but only the instrument which men have agreed upon to facilitate the exchange of one commodity for another. It is none of the wheels of trade: it is the oil which renders the motion of the wheels more smooth and easy. If we consider any one kingdom by itself, it is evident, that the greater or less plenty of money is of no consequence; since the prices of commodities are always proportioned to the plenty of money.

David Hume, Of Money, 1752.

I.1 WHY MIND MONEY

Maintaining a credible form of money is central to the organisation of society. Money can take many forms and can be an actual precious metal, and hence a commodity, or a paper version that may or may not be linked to the value of a commodity and increasingly just an electronic chit. In this chapter I shall discuss the development of money, the fascination with gold and the reasons why we still need money to perform its roles in providing operational units of account,

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1 A version of this chapter was given as a keynote address at the MMF Annual Conference at Kings College London in September 2017 and an earlier version was also given as my inaugural lecture at Gresham College on 18th September 2014, on the night of the [first] Scottish referendum on independence. An earlier version appeared in the Manchester School in 2018 as part of the Money, Macro Finance Study Group Special issue. I am grateful for comments from colleagues, seminar participants and students at the University of Kent and University of Cambridge.
2 OF GOLD AND PAPER MONEY

means of exchange and a store of value. What we shall see is that sorting out money is one of the most important things any government, dictator or, even builder of a nation state ought to fix. In this sense money might be thought to be the ultimate public good that provides critical social capital and enables the exchange of ideas, goods and transfers of resources.2

As Hume hints, money, coins and even stamps represent value and a claim on goods and services. And many of us will remember looking in wonder at the many different denominations of coloured notes from childhood travels and, perhaps, wondering why they were so many types. Older readers may recall the decimalisation of sterling in February 1971: nothing and yet everything seemed to change as decimal modernity crowded out tanners and ten bob notes.3 In fact, what might have been more important was that the world’s most important currency, the US dollar, was about to end its formal link to gold in August 1971. That act finally meant we had entered the era of fiat money, that is, money which is determined by acts and deeds or promises rather than being backed by the value of an ancient commodity.

Long before money, its rate of return (which is simply the rate at which money loses its value against a basket of goods and services, otherwise known as inflation) and its opportunity cost (the interest rate that is lost by holding money rather than income-producing assets) dominated our national agenda, it had a more prosaic aim – simply to facilitate accounting and trade. The need for some uniformity in the value of money was pretty clear, as was people’s ability to spot value, and so beware any debaser in case they fell afoul of Gresham’s Law, which is typically expressed as ‘bad money drives out good’. People have always been pretty good at working out value and Thomas Gresham spotted that if two coins, which are both legal tender, have the same nominal or face value but different values of

2 See Dasgupta (2005) on this point.
3 With 20 shillings of 12 old pence to a pound, a tanner represented half a shilling or 6 old pence. A ten bob note was half a pound with a bob being a shilling. See Feaveryear (1931) for more on these ‘lost’ terms.
actual commodity content, then the one that has the largest discount between its face value and actual commodity content will drive out usage of the one that has less of a difference between its face value and the actual commodity content.

The man who was the founder of the Royal Exchange, when envoy to Queen Elizabeth I, realised that people will be smart enough to work out, as had Copernicus before him, that they might be able to use ‘bad’ money for the purchases and keep or save the ‘good’ money for their nest eggs (see Shrimplin, 2017). But I think with the continuing emphasis of words like standard and sterling, the ultimate idea behind the development of commodity backing surely was simply to create money that could be trusted to hold its value and allow correct inference on the value of goods over time in terms of other goods. So it is the role of money in allowing trade to be separated in time and (geographical) space that makes its essential to the understanding of modern life.\(^4\)

What I try to do is compress a large amount of historical time into a small number of episodes or short stories, if you will, mostly with a happy ending. These stories provide parable or heuristics that we might use to think about the further developments of money. I will also consider a number of standard problems that money is designed to solve and then summarise the implications of a well-known model from modern economics that has proved very useful for thinking about money; money springs up in this model as a solution that avoids autarchy, starvation and an unnecessarily painful old age. First let us look at some indicators of monetary performance over the long run and in and out of regimes that were related to commodity standards.

### 1.2 PRICES, INTEREST RATES AND MONEY

Before we consider some historical developments and experiments in money, I would like to fix some simple stylised facts, which sit in the:

\[^4\] Spufford (1988) provides a masterly account of these issues.
collective conscience. These ‘facts’ are well known to central bankers but do deserve wider exposure. If we take output to be a measure of overall welfare in the economy, monetary policy is concerned not so much with its level or its long-run growth rate but the fluctuations around those long-run tendencies, which we tend to think of or refer to as business cycles. These fluctuations occur often and with considerable irregularity, as Figure 1.1 shows in the long run for the United Kingdom. Annoyingly, much of the fluctuation may be quite acceptable but much may not so we cannot be sure as to whether we should flatten or ignore it.

Let us next ask what happens to the change in the prices of goods and services not on the year-to-year basis that dominates the current pursuit of monetary stability but on an average basis over ten years. This is so we can get to grips with what levels of inflation people might reasonably have expected or experienced over a medium-term planning horizon. We are fortunate in the United

![Graph showing annual chronology of British business cycles, 1700–2010](image)

**Figure 1.1** Annual chronology of British business cycles, 1700–2010

*Note:* Shaded areas represent recessions.
Kingdom to be able to use data that allows us to examine broad trends in decennial inflation from the late seventeenth century, with appropriate splicing, to date.\textsuperscript{5} Figure 1.2 shows that ten-year average inflation seems low and stable in the commodity standard periods, so much so that households and other economic agents may well not have concerned themselves with changes in the price level over the long run.

Indeed, J. M. Keynes (1923) put it rather well:

The course of events during the nineteenth century favoured such ideas [as price stability] … the remarkable feature of this long period was the relative stability of the price level. Approximately the same level of price ruled in or about the years 1826, 1841, 1855, 1862, 1867, 1871 and 1915. Prices were also level in the years 1844, 1881 and 1914 … No wonder that we came to believe in the stability of money contracts over a long period.

Yet we can see that when shocks were likely to be have been large and uncertainty heightened, an ‘escape clause’ (Bordo and Kydland, 1992)

\textsuperscript{5} See Dimsdale et al. (2010) for further details.
was exercised with temporary delinking of money from its direct backing with gold in 1797–1821 and in the period around WWI. The period following the probable terminal end of the US dollar’s link to gold has been characterised by persistent inflation and attempts, with varying degrees of success, at its moderation. This achievement raises the question of why does linking money to a gold or commodity standard deliver a stable price level, and why might a government or central bank consider delinking from something that seems able to guarantee some certainty in the price level when times become uncertain?

Let us now examine in Figure 1.3 what that inflation series looks like compared to Bank Rate over the same period [note though that we are mixing our horizons because a policy interest rate is typically a short-run rate and the inflation rate here is measured as a long-run average]. What we note is that under the commodity standards the return on short-run interest rates, which are closely linked to those rates obtained in money markets generally, tended to be greater than long-run inflation, so that agents could reasonably expect strongly positive returns. In fact with long-run inflation broadly zero...
in this period, the nominal and real interest rates were, in effect, very much the same. The distinction between nominal prices, the cash return or requirement to buy an item and its real, or relative, price, compared to other goods and services, is a crucial distinction as it is changes in relative prices that typically provide a signal to people to change their behaviour. By conflating nominal and real interest rates in a zero inflation world, the central bank does not have to concern itself with explaining the distinction to markets, firms and households. Whether central banks always want to provide clarity in the game they run against economics agents is an issue to which macroeconomics regularly returns, as will I.

If savings in financial instruments that were closely linked to policy rates could deliver a positive real return, what about fluctuations in the price of gold in the long run? Does the price of gold rise inexorably with population and income because the supply is more or less fixed? At least for the benefit of any gold bugs, who seem to be large in number and vocal in noise, we might carefully examine the relative price of gold in terms of goods and services (we do this in terms of an index so that we can broadly relate to the change value, based to the sterling price of gold at the turn of the millennium). Hardly surprisingly, when the money was directly linked to gold at a given price, if the long-run price level of goods and services was broadly stable, which is a measure of the purchasing power of money, then gold prices would also not fluctuate. If money was overissued and devalued against gold, people would be inclined to hold gold instead and swap notes for gold, this would take notes out of circulation and act against the over issue and threaten the central bank’s gold reserves. Maintaining gold convertibility was fundamentally important and nothing should thus threaten the exhaustion of reserves. The gold standard was essentially a statement that a fixed quantity of money could be converted to gold and that a weight of gold could be considered money: this mutually binding constraint meant that neither gold nor money could fluctuate in price very much, as we see in Figure 1.3.
In a standard textbook model (e.g. Barro, 1979), a commodity standard is simply a statement that a given quantity of a commodity, for example, a standard ounce of gold, can always be exchanged for a set quantity of domestic currency. In the United Kingdom, Isaac Newton as Master of Mint in 1717 set the ratio as £3.17s.10½d; secondly, that the quantity of domestic currency in issue is limited by some ratio to gold held in reserves at the central bank. Therefore, under the gold standard, money is in effect circulating as claims on gold. The quantity of the medium is constrained by the quantity of monetary gold and the perceived degree to which the issue needs to be back. As the quantity of money is fixed by the supply of monetary gold and the price is fixed by the exchange rate with gold, there would appear to have been a considerable degree of automatic monetary stability. Furthermore, if other countries’ currencies are also linked to gold, we end up with a de facto international system of fixed exchange rates in terms of the gold prices of each currency. This not only served us well but became folksy homeland to which many still pay homage.
In this context we can then try to understand the propensity of people to hold narrow money, notes and coins, relative to national income, shown in Figure 1.5. Under the earlier stable price period, the rate of return of money was broadly zero and remained a stable proportion of income. Many economists (starting perhaps with Goodhart and Crockett, 1970) have tried to understand what drives the demand for money, and in general the resulting models reflect some view that money is required to finance current expenditures and provides insurance, in terms of liquidity, against unanticipated shifts in income. What we can also see is that when inflation became positive and persistent, the demand for money began a long secular decline. With a negative rate of return on holding money, even if income is growing and liquidity is still an important consideration, people simply have a great propensity to economise, increasingly so, on narrow money balances.

Broadly speaking, what we see from these charts is quite challenging. Commodity monies seemed to deliver greater inflation (a.k.a. price) stability and short-term assets seemed to provide a positive hedge against any inflation, so that real rates of interest were
consistently positive, the real gold price was stable and there was a stable demand for the notes and coins when compared to income. Given the long backdrop of wars, industrialisation and the development of modernity, any monetary stability was remarkable. And at least at first blush, the subsequent absence of monetary stability looks equally as stark.

And yet after the financial crisis of 2007–2008, which has been of enormous import in the new world of ongoing monetary and financial reform, no one serious thinks – quite rightly – that we ought to return to a commodity standard. Let me see if we can move towards a resolution of this puzzle. The answer lies not so much with the certainties introduced by a commodity standard where the price level is fixed in terms of a given quantity of precious metal, unless there are large enough shocks. But once society developed a theory and then a responsibility for the government of the quarter-to-quarter and year-to-year performance of the economy, this ‘barbarous relic’ of a gold standard was done for (Keynes, 1923). Such responsibilities simply cannot be discharged with a fixed price regime. Indeed the short-run volatility in prices from such a regime may itself generate much in the way of unwarranted economic fluctuations.⁶

I.3 SOME PARABLES

Let us move swiftly over time and space: a central banker looks for foundations and building blocks to build his or her theoretical world, or model. Naturally, as the statistician G. E. P. Box may or may not have said: ‘all models are wrong, but some are useful’. Let us see if we can find something useful from the lessons of history. We shall look at the development of the first standard coins in ancient Lydia and note the power that this gave to the issuer. We shall then move back and south to Mesopotamia and try to understand how credit evolved to

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⁶ See Chadha and Sarno (2002) for an examination of annual inflation volatility (or uncertainty) under the gold standard, which was surprisingly high compared to post-war regimes.