



RESEARCH STUDY 25

Monetary problems, monetary solutions & the role of gold

by

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FOREWORD

In this study, Professors Forrest Capie and Geoffrey Wood of City University, London discuss some of the major monetary problems facing policy makers today and consider whether there are lessons to be drawn from the role of gold in the past.

Uncertainty over both future price levels and future policy remains one of the key factors underlying exchange rate and financial instability. The need to control – and preferably eliminate – inflation is discussed at length and comparisons drawn with the behaviour of prices under the gold standard. Today governments place high priority on controlling inflation but there is no guarantee that the political climate will always remain favourable to price stability (“governments can not bind their successors”). The authors consider whether an enhanced role for gold would help.

The paper also considers the advent of electronic money, the potential the internet brings for the issue of private currency and the success of private gold-backed currencies in Scotland in the 18th and 19th century. The authors suggest there are potential advantages for gold-backed electronic money.

The World Gold Council is pleased to publish this study as a contribution to the debate about the future role of gold.

Robert Pringle
Corporate Director, Public Policy and Research
World Gold Council

EXECUTIVE SUMMARY

In this paper we consider three sets of issues currently troubling policy makers, and suggest that examination of history, and in particular two notable and already well-studied historical episodes, will both show that these concerns are not as great as is sometimes feared, and that in addressing them there are most valuable lessons to be learned from the role that gold played in monetary systems in the past. The three issues are: exchange-rate variability; financial crises; and the most recently raised concern, that “e-money” will make central bank money a redundant irrelevance. These issues are examined in that order, with the main emphasis on the first of them. The paper then draws together in a concluding discussion.

The main conclusions are:

- the unpredictability of future price levels and of future economic policies, are important causes of exchange rate variability and financial instability.
- there is no case for non-zero inflation; arguments in favour of positive inflation are flawed while zero inflation brings positive benefits including reducing exchange-rate volatility.
- there may be further benefits from a stable price level regime in which any “shock” to price levels has to be reversed, although less academic work has been done on this.
- price level stability was both achieved and expected under the international gold standard; the mechanism by which it delivered price stability is well understood.
- governments are currently committed to low inflation but there is no guarantee that this commitment will be sustained.
- when currencies compete, as happened once exchange controls were removed after 1980, inflation is reduced as economic agents seek out stronger - low inflation - currencies; there would accordingly be advantages in bringing back gold as a competing currency to help perpetuate the commitment to low inflation.

- banking crises both currently and under the gold standard, can be tackled by a properly functioning lender of last resort.
- the emergence of e-money could also provide competition to government monies; gold backing would facilitate the emergence of e-money.
- in short, there is still a role for gold in the modern world.

CHAPTER 1: INTRODUCTION

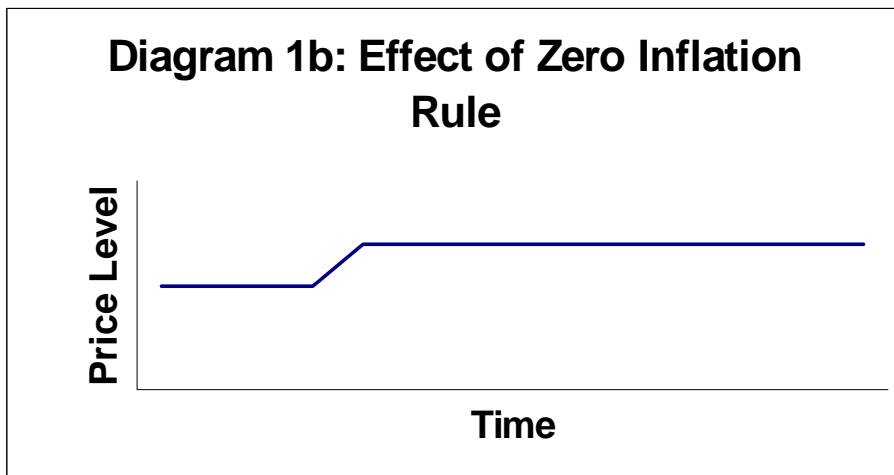
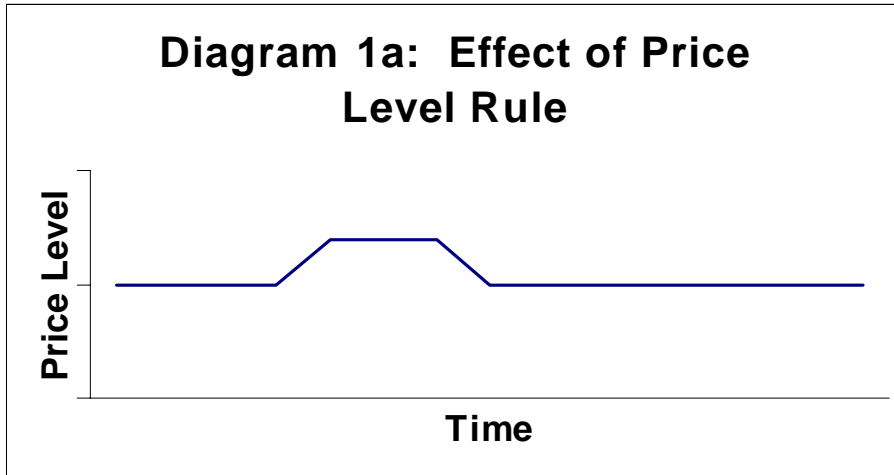
In recent years there has been a good measure of exchange-rate movement and, indeed, of exchange-rate volatility. The US dollar proved stronger for longer than many expected; the Yen almost refused to weaken; sterling (until 2000) behaved like the dollar; and the euro, despite many claims that it would appreciate after its launch, actually did the opposite. There is also volatility - of capital flows, banking systems, and, as noted, of exchange rates. Why do these problems persist? It would be foolish to claim there was only one cause. But there are undoubtedly two important common factors - unpredictability of future price levels and of future economic policies.

Even when central banks have inflation targets, the bands around these targets are of sufficient width that, even if inflation never exceeds its target and there are no price level shocks, there is considerable uncertainty about the future price level. Inflation targeting will not be perfect, and assuming no future price level shocks is a very bold assumption indeed. Further, while the commitment to low inflation is currently strong, it may not last: "governments cannot bind their successors".

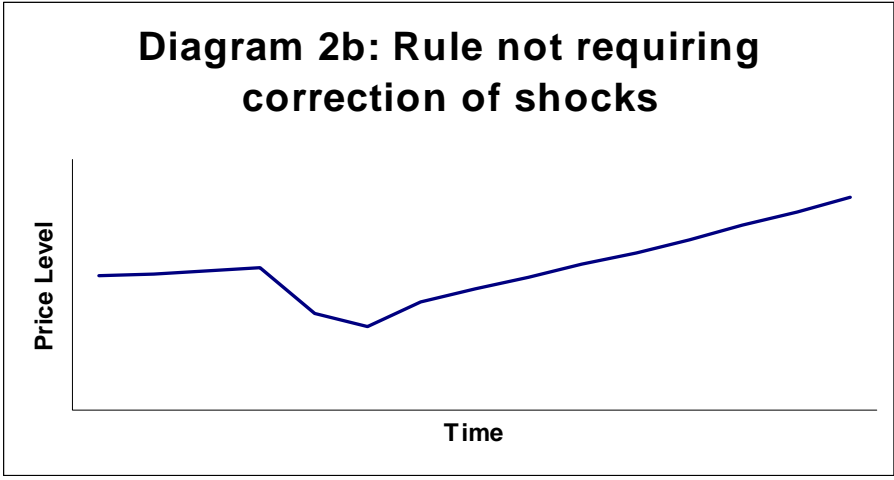
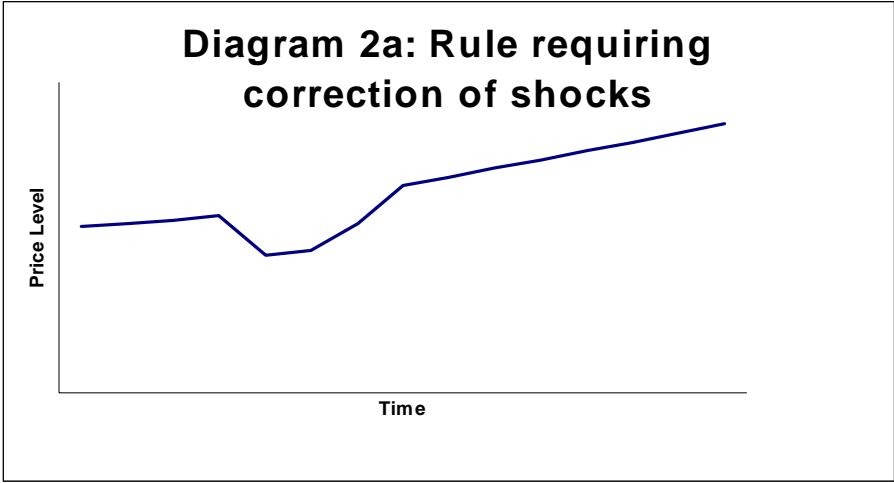
A central bank (for example) can be assigned a price level rule or an inflation rule, and the inflation rule can be to achieve zero inflation, or some positive (but one hopes very low) inflation rate.

Before evaluating these, it is essential to be clear what they mean for the behaviour of prices. In particular, it is essential to be clear about the difference between a stable price level rule and a zero inflation rule. They at first glance mean the same thing. But only the first requires correction of the consequences of shocks or mistakes. For example, a positive shock to the price level would have to be reversed under a constant price level rule; it would not under a zero inflation rule.

Diagrams 1a and 1b show the two rules. Diagram 1a is a price level rule, and shows the shock being corrected after one period; diagram 1b is a zero inflation rule.



Inflation rules can then be subdivided into those which require correction of the consequences of shocks and mistakes (correction of “base drift”) and those which do not. Diagrams 2a and 2b show the distinction.



CHAPTER 2: THE CASE FOR ZERO INFLATION

A useful starting point is to recognise that there is no case for non-zero inflation. This assertion rests on four supports. First, inflation provides at best a temporary boost to output; sustained stable inflation provides no boost. Second, stable inflation, certainly above a low rate, has measurable harmful effects on growth. Third, inflation is not necessary to facilitate adjustment of relative wages in the labour market – there is no need for it to “oil the wheels”. And fourth, the claim that it sets a floor to interest rates and thus prevents monetary policy expanding output in a recession is to misunderstand both the money supply process and how money affects the economy.

It was for a time in the post-war years generally – never universally – believed that unemployment would be lowered, and output raised, by moving to and sustaining a higher rate of inflation. This belief was summarised by the Phillips Curve (Phillips, 1958); that curve was sometimes described – although never by Phillips – as a “menu for policy choice”. The output-inflation combination one wished out of those shown in the curve could be chosen and sustained in perpetuity.

This belief broke down under a three-part challenge. One part was an alternative empirical analysis produced initially at the Federal Reserve Bank of St Louis, and which became known as the Andersen-Jordan equation or the Andersen-Carlson model. This analysis found a short-run trade off between inflation and output, but the trade-off was transitory. Over a period of a few years, changing money growth changed only the rate of inflation.

Second, the Phillips curve stopped being stable. More and more variables had to be added to estimates of the relationship. The output – inflation trade off appeared to have become highly unstable.

Third, and most fundamental, two separate studies by Milton Friedman (1968) and Edmund Phelps (1967) argued that the basic Phillips curve notion was fundamentally flawed, in that it did not recognise that expectations of the future would affect wage-setting behaviour. Hence any attempt to boost output by inflation would be self-defeating: inflation would quickly be expected, and any effects on output equally quickly fade away.

Some three decades of work after these studies, that conclusion remains; although there are different opinions about the short-run effect of monetary fluctuations on real output, there is unanimity about the long-run absence of a positive relationship between money growth and output.

Indeed, evidence is starting to accumulate that inflation is harmful to growth. The best known evidence is that produced by Robert Barro (1996); there is much other evidence. This should not really be any surprise.

If the monetary authority is committed to zero inflation, then one source of interference with the efficient working of markets – uncertainty about expected inflation – is reduced. Inflation uncertainty makes it difficult for individuals and firms to distinguish changes in relative prices among goods and services from movement in the aggregate price level. Mistakes in the allocation of resources are more likely to occur because of this uncertainty, with real growth consequently less than it could be.

Of course the above need not imply that we want zero inflation, or even low inflation; all it would seem to require is predictable inflation. But it is hard to keep any inflation except very low inflation predictable. A fundamental reason for this is that once an inflation rate other than an approximation to zero is deemed acceptable, it is hard to resist “just a little more” inflation for some one-off good cause. Further there are compelling arguments for zero inflation. Before coming to these, though, there are some arguments against it to be considered.

One argument in favour of positive inflation is that certain wages must fall relative to other prices or other wages, and inflation allows this adjustment of real wages to occur in the face of nominal wage rigidity. With zero inflation, the argument goes, rigid money wages prevent appropriate adjustment to relative price disturbances with the result that employment varies inefficiently. Therefore, a little inflation is a good thing because it allows wages to fall relative to other prices; inflation “greases the wheels” of labour-market adjustment.

There are serious flaws in this argument. First the argument claims that nominal rigidity creates a large inefficiency that inflation ameliorates. But, if the claim of a large inefficiency is true, a simple argument creates the presumption that nominal wages would not continue to be sticky in a zero-inflation regime.

There is dispute about the extent to which nominal wages are downwardly rigid. No doubt some employers have found it difficult to reduce nominal wages during the periods covered by the most popular data sources. To the extent that downward nominal wage rigidity exists, it presumably serves some economic function. After all, putting minimum wage laws aside, fixed money wages are not required by law. But we cannot assume that the present degree of wage rigidity – whatever it is – would continue into a different inflation regime.

Jobs appear, jobs disappear, and people move into and out of them at rates far higher than net employment growth. This is evidence that labour markets do not suffer from any massive inefficiency. If nominal wage rigidity creates significant economic inefficiency, it seems entirely plausible that it is perpetuated by inflation. On the basis of the current state of economic theory and evidence one must presume that inefficient wage rigidity would disappear in a zero-inflation economy.

A second flaw in the grease-the-wheels argument is that it imagines only two mechanisms for achieving adjustments to a worker's relative wage: either cut the nominal wage, or let all other prices around it rise. In fact, the workings of labour markets suggest at least two other mechanisms, and so the presence of nominal wage rigidity – were it to exist – might not be a hindrance in a zero-inflation world.

First, average earnings tend to rise over time, as overall productivity improves. Thus, in a zero-inflation environment, nominal wages may not need to fall, even in some declining occupations. Second, compensation tends to increase with seniority, partly because of an individual's accumulation of human capital. Thus an individual worker typically will expect an increasing real wage. Therefore, the kind of base adjustment achieved by inflation can also be accomplished by delaying wage change relative to an individual's upward-sloping real wage path.

Of course, there is a segment of the labour market where little human capital accumulation exists and long-term implicit contracts are rare. But this is exactly where turnover costs are low on both the supply and demand sides of the market. Hence, any nominal wage rigidity that is present is not especially costly.

The next flaw in the labour-market case for positive inflation is perhaps the most obvious. Inflation tends to increase the microeconomic shocks – because cross-sectional variation in price changes tends to rise with higher aggregate inflation – that support the case for pursuing a positive rate of inflation. Thus, the claim that inflation helps the economy cope efficiently with relative price changes is suspect immediately, since there is more relative price variation to cope with if there is more inflation.

Now let us consider whether concerns about conducting countercyclical monetary policy in a low-inflation environment can justify a positive rate of inflation. Specifically, does price level stability cause special problems for monetary policy because nominal interest rates cannot be less than zero?

According to this argument an inflation target of zero interferes with the attempts of monetary policymakers to stimulate an economy in recession because the nominal interest rate obviously cannot fall below zero. With moderate ongoing inflation the policymakers have room to push the real rate of interest below zero.

The zero-bound story begins with the idea that monetary policy is concerned with setting a short-term nominal interest rate. A higher nominal rate is often described as a tighter policy, while a lower nominal rate is described as an easier policy. When the economy is weak, the monetary authorities lower the rate in an effort to stimulate interest-rate-sensitive sectors of the economy. So according to this view, when a recession hits, the current level of the rate determines the number of basis points the central bank has available to combat the recession: the lower the initial rate, the less scope for subsequent easing.

The zero-bound view has encountered many counterarguments over the years. Perhaps most obviously, this view places heavy emphasis on the idea that monetary policy can be used to fine-tune the macroeconomy. It neglects well-known concerns that attempts to fine-tune can contribute to economic instability.

More importantly, nominal interest rates do not indicate the true stance of monetary policy, even though, as a practical matter, the central bank implements policy by targeting a nominal interest rate. Though this method of implementation has been effective in recent years, controlling the rate is

not an end in itself. Fundamentally, monetary policy is reflected in the growth of the money stock and, ultimately, the rate of inflation. So the idea that central bankers are somehow trapped if the nominal short-term interest rate nears zero seems odd. Liquidity can always be injected, regardless of the level of nominal interest rates.

The first years of the Great Depression in the USA offer perhaps the clearest illustration that monetary policy is about providing liquidity and not about controlling nominal interest rates. During that time, nominal interest rates were low, which seemed to indicate an “easy” monetary policy. But as Milton Friedman and Anna Schwartz (1963) noted, from 1930 to 1933 the money stock was falling rapidly, indicating a far tighter policy than was intended. That policy was an unmitigated disaster, as both output and prices fell by a third and the unemployment rate reached 25 per cent. That experience as well as other, less dramatic, historical episodes, should make it obvious that adherence to nominal interest rates as indicators of the stance of monetary policy can be misleading.

One should also remember that during the late 1950s and early 1960s, the nominal annualised yield on three month US Treasury bills fluctuated around 3 per cent, while the yield on 10-year Treasury bonds was around 4 per cent. These yields are below, but not far off, those we observe today. Consumer price inflation during that period averaged about 2 per cent on a year-by-year basis. During the late 1950s and early 1960s, there was no obvious impediment to the operation of monetary policy just because inflation was low.

The relative stability of both the UK and US economies in recent years suggests that low inflation contributes not only to less inflation variability but also to less output variability. Throughout the 1970s and early 1980s, by contrast, when inflation rose sharply and then fell abruptly, the United States suffered through three recessions, including two of the most severe recessions of the postwar era. During that period, the US economy was hit with shocks from external sources, but at the same time monetary policy was decidedly uneven – resulting in a substantial inflation that caused both unnecessary distortions and proved difficult to reduce. The UK’s experience was similar – indeed in inflation terms rather worse. Postwar experience thus strongly suggests that lower inflation is associated with less

volatile inflation, and lower inflation volatility is reflected in lower volatility in real output. Even in a zero-inflation environment the lower bound on nominal interest rates would not be a problem for stabilisation policy, not least because economic volatility itself would probably be lower.

Having argued that there can be no objection to zero inflation, the next point to be considered is what are the positive benefits of it. Some have been noted above, but a major one remains to be considered — the substantial biases added to the tax system by inflation. The gains from reducing inflation also increase with time for GNP grows through time and the gains are proportional to GNP.

This has been argued in the context of the US economy by Martin Feldstein over many years. A recent study extended his work, and made comparisons also with the UK, Spain and Germany (Feldstein, 1999). Tax causes loss of economic efficiency even without inflation; the higher the rate of inflation, the greater the bias against future consumption (ie against saving) and in favour of owner-occupied housing as compared to other forms of investment. In a 1997 paper, Feldstein found that, by eliminating these biases a move from over 2 per cent pa inflation to zero inflation produced substantial gains – it raised “...annual economic welfare by an amount equal to a 1% rise in real GDP”, (Feldstein 1999, p.2).

The studies of Spain, Germany and the UK noted above also showed gains from such a move; but in every case, not surprisingly as the tax systems differ, different from those for the USA. For Germany, the gain was about 40 per cent greater than for the USA; Feldstein conjectures that high marginal tax rates in Germany are the main source of this difference. In Spain, the gain is 70 per cent greater than for the US; the main source in this case appears to be the great favour shown there to owner-occupied housing. Only for Britain was the gain lower than in the US; about one fifth of the US gain. Ironically in view of recent changes to the UK tax system, Feldstein suggests that the difference was due primarily to the indexation for inflation of capital gains. As he put it, that eliminated “...one significant source of the tax-inflation interaction that penalises postponed consumption” (Feldstein, 1999, p.3).

CHAPTER 3: STABLE PRICES

Is there a case for going beyond zero inflation – which is what the above argues for – and actually having price level stability as a target? There is much less work available on this. But with regard to the benefits, some points can be made informally.

Under the classic gold standard, although prices fluctuated year by year, over the longer term the price level was stable. There were enormous international capital flows under that system. People in one country were willing to invest, sometimes via long-term bonds, in others, and that facilitated economic development. The best-known example is the United States. That country ran large (relative to GNP) current account deficits throughout most of the last quarter of the 20th century. These were used to finance the development of (inter alia) the railroads. The subsequent opening up of the mid-west, had a great effect on food prices, and thus increased welfare worldwide. A similar story can be told of Argentina (AG Ford, 1960) and of New Zealand and Australia.

There were also benefits within countries. Here again railways provide a good example. Railway development in the UK was financed largely by the issue of bonds. British railways run on essentially that same network today. Accordingly, then, it is plain that price level stability is good for long-term investment. Are there risks, or is price level stability a “free lunch”?

Critics of price level stability as a goal of policy often point to the volatility of output year-by-year under the gold standard, and ascribe that to the behaviour for the price level. That is not a persuasive argument. First, it is not clear that output actually was more variable than in the mid 20th century. The work of Romer (1985) recalculating GNP has found that when a consistent method of calculation is used, US GNP seemed no more variable in one period than in the other. The same work has not (as yet) been done for other economies; but the finding for the US must raise doubts about the widespread validity of the assertion.

Second, the claim that price volatility was the cause of output volatility

invokes the assumption that nothing else, including the composition of output, was responsible for the volatility. That is far-fetched. In addition, why should price volatility cause output volatility? After all, if people expect that prices can fall, as well as simply go up at varying rates, surely they will make appropriate contracts. There is little work on this point but, interestingly, the conclusions of the work are unanimous.

Friedman and Schwartz (1982) found that only large monetary contractions had major effects on output; in the UK Goodhart (1982) in his review of Friedman and Schwartz (1982) by a method different from theirs found the same result. The result, it should be emphasised was that small monetary fluctuations did not produce output fluctuations. This bears somewhat indirectly on the question at issue, however, for while monetary policy affects prices, small monetary fluctuations might simply impact on velocity. Two studies have looked directly at whether price fluctuations effected output fluctuations in this period. These are Nealy and Wood (1995) and Mills and Wood (forthcoming).

Both are somewhat technical, and involve extensive data manipulation. This is of course a weakness in studies relying on perhaps somewhat fragile 19th century data. But, that said, they both found that price level changes – in either direction – did not affect output; while inflation for a time did. That may seem counter-intuitive, but in fact it is consistent with the theory of the gold standard – for only the second category of price change would be a surprise in that system.

The reason for this is clear, and is set out in the next section.

CHAPTER 4: THE THEORY OF THE GOLD STANDARD

It is as well to establish that the price performance of the gold standard was not accidental. At least from JS Mill (1848), the mechanism by which it produced this result was well understood, and his work has been extended and formalised by modern authors such as Barro (1979), Rockoff (1984) and McCallum (1989, chapter 13) in ways which reinforce his conclusions.

The argument can be summarised as follows. If prices were falling (the value of money rising) because the supply of gold was falling short of demand, there was an incentive to produce more gold. And if prices were rising (the value of money falling) then, as the costs of gold production rose relative to what the monetary authorities would pay for gold, the incentive to produce gold would diminish. (Barro (1979) and Rockoff (1984) discuss this stabilising mechanism in some detail.) The price level would therefore fluctuate about a 'flat' trend. It would require a permanent (once-for-all) change in the relative price of gold to move the price level to a new trend, and a continual change in that relative price to impart a permanent non-level trends to prices.

That modern authors now understand the gold standard is immaterial for how the standard was seen at the time. But a classic treatment of it, to which modern authors have added only changes in expository techniques, can be found in Mill (1848, Book III, chapters 7-10).

How did prices actually behave under the gold standard? Mills and Wood (1993) provide a comparison of UK price level trends across various monetary regimes, including the gold standard. They found that prices were stationary¹ under the gold standard, but became nonstationary after 1933. The price level did, of course, fluctuate under the gold standard and a discussion of these can be found in Cagan (1984). He suggested that prices had a cycle of roughly fifty years duration; and Mills (1990) provides results, drawn from data extending back to 1729, which support that conclusion.

Further, there is clear evidence that prices were expected to be stable. First, and

¹ A time series is stationary if its characteristics, such as the mean and variance, do not change over time

most obviously, there had actually been price falls in the UK. The price decline following the Napoleonic wars, which allowed sterling to return to gold at pre-war parity, is the best known; between 1817 and 1821 the general level of prices fell by 28 per cent. But there were also well-documented declines in the general level of prices between 1825 and 1833, when prices fell by 20 per cent, and between 1873 and 1896, when the fall was 23 per cent.

The behaviour of interest rates provides further support. A notable feature is the much greater variability of the short rate. This is a well known observation. In a study of money demand in this period (Mills and Wood, 1982), the finding that short-term rates were significant as an opportunity cost variability but long rates were not was suggested as being due to the low variability of the latter. That low variability in turn was ascribed to modest year by year price level changes leading to the inflation expectations component being slow to change, combined with the finding by Friedman & Schwartz (1982) of relative stability in the real rate of interest in this period.

Finally, in support of the claim that price level stability was expected on average we turn to the Gibson paradox: the apparent relationship between the general level of prices and the level of nominal interest rates, as distinct from the expected relationship between the level of interest rates and inflation rates; that characterised this, and some other, periods. There have been various explanations of this phenomenon, but the only one not subject to serious objection is that advanced originally by Fisher (1930) and defended by Friedman and Schwartz (1982 op.cit.). (For a review and detailed examination of all the hypotheses, see Mills & Wood, 1992.)

A move from one fully anticipated inflation rate to another alters the nominal yield on nominal assets. That could produce the appearance of a relationship between nominal yields and the price level if inflation expectations adjusted with a lag to inflation; for under that assumption, the longer inflation persisted (and thus the higher the price level rose), the higher would the nominal yield rise.

Now, if expected prices were formed on the basis of a long distribution of past prices, there must have been some periods when expected prices lay below the current price level; for, as noted earlier, prices rose and fell about a more or less level trend in those years. Hence the only sustainable explanation for the Gibson paradox implies that price falls were sometimes expected. It has to be concluded that the gold standard period was one of stable expected prices.

CHAPTER 5: GOLD AND A MODEST PROPOSAL

So far it has been argued that stable prices, or, at the least, zero inflation would bring benefits in terms of economic welfare as measured by growth rates, could reduce cyclical volatility, and would improve the efficiency of resource allocation both year by year and intertemporally.

Governments in many countries have inflation targets - too high, in most cases, but at least representing a desirable step. What guarantees can be given that these will not be abandoned?

The answer has to be none. So another commitment mechanism must be sought. What could it be? Constitutional embedding of the commitment can be helpful where countries have a written constitution. But not all countries have such constitutions, and, even in countries where the constitution is written down, there are provisions for it to be changed. Change might be easy – as in France; or difficult – as in the USA; but change is always possible.

There is, fortunately, another, “non-legal” approach. In Adam Smith’s *The Wealth of Nations* there is one of the most famous sentences in all of economics. That sentence summarises with great clarity just why market economies with competition among firms are so good at providing what people want.

“It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity but to their self-love, and never talk to them of our necessities but of their advantages. [*The Wealth of Nations*, Book 1 Chapter II.]

In other words, competition by producers trading in open markets delivers what people actually want to buy. Firms which supply things not wanted, or which supply goods which are desired but at too high a price for their quality relative to what others provide, will disappear.

Now, it must be explained at this point that we are not claiming such markets are perfect. But we are claiming that they do better than any currently available alternative; and that is the appropriate criterion. Economists sometimes point to “imperfections” in markets, and on the basis of these demonstrated “imperfections” suggest that central planning, or at the least some considerable degree of direction of industry, is desirable. That approach is fundamentally misguided. As Harold Demsetz argued in a classic paper in 1969, existing institutions should be judged by comparison with available alternatives, not with purely imaginary fault-free alternative systems. And the evidence is clear; compared with other ways of ordering economies, competitive free markets are best.

Why not, then, have competition among monies? In one direction this points to e-money, discussed below. But there is another way also in which competition could help.

When exchange controls started to be eased worldwide, inflation started to fall. This was because if a currency’s performance was felt to be unsatisfactory, people could leave it for another currency. This would undermine the prestige of national governments, as well as reducing their tax base. (As the monopoly supplier of national money, the government gets revenue - analogous to a tax - from issuing it.) Hence any tendencies to inflation were kept in check.

It is not possible to demonstrate formally by statistical means that these competitive mechanisms produced this desirable result; for such a demonstration, one would have to be able to look at the motives of the policy makers who implemented the policy changes which lowered inflation. But one does not have to be a whole-hearted believer in the public choice school of analysis (which holds that politicians and bureaucrats are guided essentially only by self-interest) to think that self interest, under the spur of competition, played a part in this behaviour.

Further, some historical episodes support the argument.

Currency substitution takes place when the residents of a country vary their holdings of domestic and foreign currency according to changing costs. The desirability of holding a currency diminishes as the associated rate of infla-

tion rises. Substitution has often therefore taken place as a result of the search for stable money. Competing monies or currency substitution can come in different forms. One way of thinking about it is in the free banking context. For example, in Scotland in the eighteenth century there were many different issuers of money and these different issuers competed for custom by providing reliability and stability. However, all these monies were expressed in the same unit of account. At the other end of the same spectrum lies the phenomenon of dollarisation. In the second half of the twentieth century there was a great deal of that, although perhaps not as much as might have been expected given the scale of inflation. There are some factors explaining its relatively slow adoption – legal tender laws and tax collection practices among them. Nevertheless, dollarisation as a particular form of currency competition has been extensive both in Latin America and elsewhere. Other examples can be found: for instance in the Soviet Union in the 1920s (Siklos, 1995); and again in the Soviet Republics in the 1980s and 1990s as they prepared for the introduction of separate currencies. In 1922, trying to cope with the depreciation of the rouble, the Soviet Government introduced a currency called the tchervonetz (which means 'gold coin') to circulate alongside the rouble. Most accounts regard this as a successful experiment.

This “competition” mechanism may be weakened by the advent of the euro, for that reduces the number of competitors. What can be done? Here gold can play a role. It can not of course be made a store of value by declaring it so. But by removing the remaining taxes and restrictions on gold coins, gold investments and gold-backed currencies together with, an additional incentive, continuing to hold some gold in national treasuries or national banks as a reserve, would help. A new competitor would be eased onto the market and the ‘commitment’ to low inflation reinforced.

To conclude so far, then, price stability brings many advantages to an economy, and long-term commitment to it can be reinforced by making it easier for gold to be a store of value. But price stability does leave a problem, which was important in the nineteenth century. To that problem we turn to in the next section in the paper.

CHAPTER 6: FINANCIAL CRISES

Even if price stability were achieved there would always be the risk of interruptions to the trend because of the appearance of financial crises – something that threatens the money stock. If one bank fails there is a danger of suspicion spreading that the system as a whole is less sound than it might be. That could lead to others failing, as depositors remove their funds. This brings the danger of a major collapse in the stock of money and hence of a severe recession in the economy. Avoiding financial instability of this kind is a key concern.

It is worth noting here that the gold standard provided a good rule for monetary stability but it did not prevent central banks acting in a crisis – they simply had to learn how to do that. The causes of financial crises have not changed greatly over the centuries. There are two key causes: poorly run banks; and unexpected shocks that result in a rush to cash or high quality assets. There are two other causes: regulatory constraint; and moral hazard. And there is said to be another possibility in contagion.

The fundamental problem which allows these difficulties is that banks have liabilities that are largely on demand, and on the other side of the balance sheet assets which are longer term. The difficulty is to manage such a balance sheet. Successful banks – and successful systems – have learned over a long time how this should be done. They work their way towards the appropriate level of reserves to hold and the type of advance to make and on what conditions. (The overdraft was one such ingenious device that allowed banks to lend on what was in effect long-term conditions while retaining the ability to curtail lending at short notice.) Banks also learned to have well-diversified portfolios that were spread across the economy's geographic areas and economic activities.

When banks behaved in a prudent fashion they gradually acquired a reputation for reliability and over time this in turn allowed them to lower reserve asset ratios further – to keep lower reserves and to extend lending and so

improve efficiency and increase profitability. But there will always be some trade-off between prudence and stability on the one hand and low costs on the other.

However, having said all that, even well-behaved banks and banking system can encounter liquidity problems when some external factor hits. This is partly because of information problems. The danger would certainly be lessened if there were such a thing as perfect information. It is lessened as the quality and quantity of information increases. But even a well-behaved system can suffer a run when some news breaks that suggests a bank is not as robust as was previously thought, for depositors take quick action to safeguard their own positions. This can produce a run on others and is the fundamental explanation for bank runs and banking crises.

The causes of crises have then been fairly constant over time. It is no surprise to find that the basic solutions have also remained unaltered. The answer was developed first of all in England in the course of the nineteenth century. In a nutshell it is for the central bank, as the note issuer and ultimate source of cash, to behave as a “lender of last resort”. The lender of last resort should preserve financial stability by coming to the rescue of the market as a whole (and not to the rescue of any one institution) at a time of a liquidity squeeze. There are many reasons why a central bank cannot or should not bail-out an individual institution. The most obvious is, that doing so would generate “moral hazard”. That is to say, if it became clear that the central bank would rescue an ailing institution there would be incentives for banks to be more reckless (the price of risk would have fallen and we would therefore see more of it being ‘consumed’). Banks would benefit from the higher returns available in risky ventures without having to worry so much about the losses if the ventures failed.

The solution, then, is for a properly functioning lender of last resort to provide the necessary liquidity in the market when such pressures emerge.

CHAPTER 7: DENATIONALISATION OF MONEY?

A question now arises: might the world be on the point of changing in a fundamental way? Could the internet change the nature of money? There is a well-developed literature on the advantages and disadvantages of denationalised money. There is the parallel debate on whether or not money is a natural monopoly. This is all well-trodden ground and we are not going to rehearse the arguments here. What we want to do is focus on the possibility that technology might be in the process of denationalising money by means of the internet – we might see electronic money.

It is important to be clear about what is meant by electronic money. At one level it is simply money that is transmitted electronically. Thus a “smart card” that can be loaded with cash at an ATM and then used in other machines (parking meters, telephone boxes etc) is electronic money. There may be implications for the monetary system of this kind of development but it is difficult to imagine that they would be profound. Perhaps it would affect the demand for money and maybe velocity of money but it is unlikely that such effects would be of much significance. Even where such cards can be loaded with large sums in different currencies and spent in different countries they are still simply a means of withdrawing cash from bank deposit accounts. The fundamental relationships in the monetary system are likely to remain largely undisturbed. The public continues to hold cash and use cash even if it now comes in different forms.

But there is the possibility of ‘genuine’ internet money developing. That is to say issuers of “money” could arise. Money is after all only what is acceptable as money. In eighteenth century England the money stock was supplemented by manufacturers issuing their own “money”. These were tokens which were produced in times of coin shortages. They had a certain geographical range of acceptability. In the nineteenth century in some parts of the country bills of exchange supplemented the money stock. The list is long and it is not necessary to provide a history of money from barter to fiat money to make the point.

There are already indications of new issuance on the internet and it is not difficult to see the appeal that such money might have. There are of course many problems attaching to such money problems for users, suppliers, regulators, and monetary authorities. We touch on some of these problems but before doing that consider a previous period in monetary history when something similar developed.

That was the period, largely in the eighteenth and nineteenth centuries when free banking flourished in some places. The most well known of these is the Scottish experience which dates from the end of the seventeenth century until the middle of the nineteenth. In Scotland there was complete freedom. Anyone could open a bank and issue their own notes. Scotland was a small emerging market with income levels per head roughly half those of its neighbour England at the end of the seventeenth century but by the end of the period they were roughly equal. In banking there were no capital requirements, no supervision, no deposit insurance. Over a period of learning a number of sophisticated measures were developed to cope with prospective or actual problems. Interest was paid on deposits and an overdraft system emerged. There was an extensive private note issue and notes initially carried option clauses. A private clearing system grew up too. The system that developed was in the main free of the problems that are often said to be endemic — over-issue, counterfeiting, and instability. In fact by most measures of success in banking it comes out well ahead of the English system. Failures did occur but did not cause panic and became accepted as part of the risk. Scottish banking was more stable than English. Interestingly when the worst financial crisis ever (to date) struck in England in 1825 with scores of banks failing, Scotland was more or less untouched. What the system demonstrated was an ability to provide through competition a prudent and innovative system. And all of this was achieved without a lender of last resort.

However, the possibilities for new monies do face certain problems. The key is essentially how would they gain acceptability. In the free banking era new issuers would endeavour to make their product as attractive and secure as possible. They presented a sober and reliable face, and introduced such devices as option classes, and of course were ultimately tied to gold. What is needed is a reputation for probity or something which can substitute for such a reputation.

An interesting development in this area is therefore the appearance of e-gold¹ and GoldMoney². These are payments system in which payments are made on the internet completely backed by gold or, in the case of e-gold, other precious metals. A quantity of e-gold or, in the case of GoldMoney, GoldGrams, constitutes title to a precise weight of the physical metal which can be used to purchase goods and services. The actual gold is held in a bullion vault and does not move but ownership changes as purchases are made.

This is a return to a kind of gold standard but with certain advantages. In the first place both e-gold and GoldMoney are 100 per cent backed by gold. Second the gold units are highly divisible. Whereas in the past there were limits to how small a gold coin could be, now a few milligrams of gold can be used in transactions as a micropayment.

It is not difficult to see the role that gold or other metals might go on to play in an electronic system. In order to launch a new money, it could be backed 100 per cent by gold. If in time the money became popular with advantages over other monies a change in the backing could be introduced and so on in much the same way that fractional reserve banking first began.

¹ See website (www.e-gold.com).

² See website (www.GoldMoney.com).

CONCLUSION

Our paper has made several main points. First, price stability is highly desirable, and was for many years delivered close to automatically by the gold standard. Inflation, and inflation volatility, emerged as serious problems only when politicians abandoned that standard in the belief that they could improve on its performance. Inflation targeting developed when the belief was shown to be fallacious. Inflation targeting could be reinforced if gold were encouraged to have an expanded role as a competitor for national monies; for competition would be a check on monetary irresponsibility. Indeed, it might serve to drive politicians to adopt genuine price stability, rather than merely low inflation as a target.

When inflation is low – or, even better when prices are stable – exchange-rate fluctuations would still occur, but would by and large reflect underlying changes in real economies. A major source of exchange-rate volatility would be removed.

Even under the gold standard, when prices were stable on trend, financial crises could and did appear. But there is a well-established mechanism for dealing with these – lender of last resort action by the central bank. Properly carried out, such action does not threaten, and may indeed preserve, price stability.

Dissatisfaction with government's monetary performance has from time to time led to a search for non-government issued money. There are many examples of these, often successful, in the past. A modern version of non-government money could be e-money. Backing with gold, a widely recognised and valued asset, would facilitate the development of e-money.

In short, there is still a role for gold in the modern world.

APPENDIX: PRICE MEASUREMENT PROBLEMS

A commitment to an inflation target involves measuring inflation. There are two issues to be examined, practical and conceptual. They are taken in that order.

The practical measurement problems arise basically because of quality change, the appearance of new goods, and changing patterns of consumption. Quality change matters because people are not interested in buying a “thing” – a computer, say. What they want is the services the “thing” provides. Hence, if a machine provides either the same services at a lower price, or more at the same price, then the price of the service has fallen. New goods also create a problem. If they replace an old way of achieving the same end, the goods in the price index can change; but sometimes they enter the index without rapidly displacing something else. When a new good enters, how is the index to be compared before and after entry? The rapid development of computers and other information technology has made these problems particularly acute at the current time. There is currently much debate over the proper way of dealing statistically with this issue, in particular the possible use of so-called *hedonic* price indices.

A related problem is that people’s consumption changes in the face of relative price change. All prices do not rise or fall together; they change at different rates and thus change the price of consuming one good as compared to another. The index should reflect this, but indices sometimes change only with a lag. When the lag is significant it has accordingly been argued that inflation is overestimated since the index gives an exaggerated rate to more expensive goods and services which consumers are now buying less of.

A fundamental criticism has, however, been levied against the cause of conventional CPIs. The criticism is that the index should include, as none currently does, some asset prices.

Of course, not all asset prices are proposed for this role; many financial assets (bank loans for example) do not have observable prices. The proposal

¹ This limitation is not a severe criticism of the proposal; after all, current price indices are not exactly a perfect measure of the cost of current consumption.

is that the prices of traded assets be included.¹ What is the argument? The following draws on Alchian and Klein (1973); the most recent proponent of this position (Goodhart, 1999), essentially relies on the same basic arguments.

Current utility depends on current consumption (including the consumption of services currently yielded by assets.) Thus movements in an index (such as the UK's RPI and RPIX, the targeted inflation measure, or the USA's CPI) which measures changes in the money cost of a bundle of goods and services would for current consumption, measure changes in the money cost of achieving a particular level of utility.

But, the argument then runs, lifetime utility depends on future as well as on current consumption. Hence movements in price indices reflecting current consumption mis-measure changes in the money cost of a given level of lifetime utility unless the price of current relative to future consumption does not change. Hence, Alchian and Klein (op.cit), argue, a "correct" measure of inflation should include asset prices – for they show the current money prices of claims on future consumption.

Now of course, if we were to argue that the task of monetary policy was to stabilise or otherwise control the money price of current consumption then the Alchian and Klein argument could simply be ignored. But that would be a somewhat unsatisfactory way of proceeding, for it is indisputable that lifetime utility depends on lifetime consumption, that current utility is seldom a good proxy for average utility over a lifetime, and that inflation control is not an end in itself but a means of increasing utility. Hence measuring inflation by a measure little related to utility would seem lacking in point.

But there is another argument. Goods now cannot be directly exchanged for goods later; there is no such market (at least of any significance). But they can be exchanged indirectly. Cash can be exchanged for bonds, which in due course secure cash later. Hence the value of goods now relative to goods later can be stabilised if two conditions are satisfied. First, if the price of goods now in terms of money now is stable in every time period; and second, if the return on exchanging money now for money later through the bond market is constant.

Satisfying the first condition is equivalent to stabilising a “normal” consumer price index (such as the UK RPI or the US CPI). Doing that would also eliminate the inflation expectations component for the nominal bond yield. That would not leave the nominal yield constant. But it would eliminate all sources of disturbance that the monetary authorities could eliminate. The forces of productivity and thrift could still interact to produce a changed real rate. But monetary policy can do nothing systematic about that. Further, as a matter of history, eliminating the inflation expectations component would eliminate the most variable component, and sometimes by a the biggest component, of nominal bond yields. (see Schwartz (1989); Friedman and Schwartz (1982 op.cit.)).

Accordingly, then, one must conclude on this issue as follows. A good practical measure of price behaviour can be provided by a normal consumer price index – that is, one which excludes asset prices. Stabilising such an index, or, at the least, inflation, would be welfare enhancing. The evidence is that zero inflation is approximated by a measured inflation rate of, say, 0-1 ½ per cent pa.

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