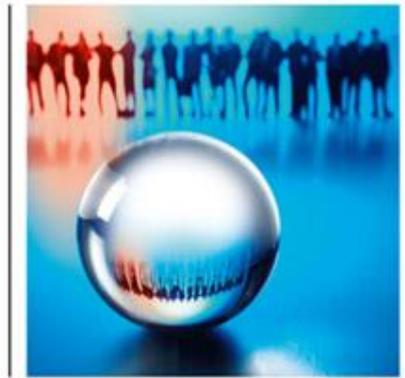


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Inflation and Other Risks of Unsound Money

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Purpose of paper

To investigate Austrian economic literature and explain to an actuarial audience the concepts of 'sound money' (normally a commodity based medium of exchange) and the risks, including inflation, of the current 'unsound' government-issued fiat based money system.

Abstract

No form of money is perfect. Even gold suffers from new supply – although it is quite difficult and costly to mine.

Austrian economic theory helps us to understand the distortions and ultimate consequences of injections of government fiat paper money. As the new money is created it dilutes purchasing power of the holders of money - in a free market this is the people who have produced more than they have consumed - and reduces the real value of holders of nominal debts. In other words, it favours debtors over creditors. It can be seen as a form of property theft.

Importantly, the new money created does not affect all prices equally. Money injection is often uneven and non-transparent. Under a fiat money system, the government can simply print the money and use it for its transactions. The first recipients of the money are those to that the government pays money. This money is then paid to other producers and eventually distributed throughout the economy. The inflows of additional money create (real) winners and losers.

As relative prices are distorted by injections of money, this must lead to misallocation of resources. Monetary calculation, a keystone of the economy, becomes distorted. The injections of money lead to malinvestment.

Austrian economic theory helps us to understand the concept of 'sound money' and helps us identify that the current government fiat paper based money system is 'unsound'. Austrian economic theory shows us that the 'unsound money' system is facing a final and total catastrophe. In particular, this has significant implications for the actuarial assumptions to be used in the modelling of organisations with nominal assets and real liabilities.

Keywords: Inflation, medium of exchange, sound money, gold, fiat money, Austrian economic theory, central banking, currency debasement

Introduction

This paper *'Inflation and other risks of unsound money'* investigates concepts drawn from Austrian economic literature, with an emphasis on how Austrian economic theory explains that the current 'unsound' government-issued fiat money system leads to a significant risk of currency debasement.

The Austrian economist Ludwig von Mises (1912, p414) explains that *"The postulate of sound money was first brought up as a response to the princely practice of debasing the coinage. It was later carefully elaborated and perfected in the age which – though the experience of the American Continental Currency, the paper money of the French Revolution and the British Restriction period – had learned what a government can do to a nation's currency system"*.

In what I found to be a logical and well-reasoned book on the subject of unsound paper money, Detlev Schlichter (2011, p15) argues that *"Elastic money is superfluous, disruptive, destabilizing, and dangerous. It must over time, result in growing imbalances and economic disintegration to which the proprietor of the money franchise – the state – will respond with ever larger money injections. When the public realizes that a progressively more unbalanced economy is only made to appear stable with the temporary fix of more money, it will withdraw its support for the state's immaterial monetary unit. A paper money system, such as ours today, is not only suboptimal; it is unsustainable. And the endgame may be closer than many think"*.

Currency debasement has implications with regard to potential inflation outcomes, and especially poses significant risks for individuals and organisations that have nominal assets and exposure to real liabilities.

Economic Theory

Economics is different to pure mathematical sciences in that it analyses the actions of man. Economic theories attempt to explain the workings of society, the interactions of men. The good economic theories are those based on reason and logic. The bad economic theories are those based on fallacies that most often ignore longer term effects.

In most of the world, the current prevailing economic theory is 'Keynesian economics' as established by John Maynard Keynes in his book *'The General Theory of Employment, Interest and Money'* published in 1936. Keynesian economic theory is supportive of the 'mixed economy' with government and central bank interventions.

The Austrian economic school was founded by Carl Menger's book *'Principles of Economics'* published in 1871. The treatise that defines Austrian economic theory is *'Human Action'* by Ludwig von Mises which first appeared in English in 1949. Rothbard's *'Man Economy and State'* first published in 1962 is also a prominent contribution to Austrian economic literature. Austrian economic

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theory is supportive of laissez-faire capitalism, limited government, and the removal of central banks.

Keynesian economics is supportive of 'elastic money', including that arising from fractional reserve banking supported by a central bank. Austrian economics is supportive of 'inelastic money', with the banking system limited in its ability to issue fiduciary media. Fiduciary media is issued when banks grant loans that have been funded by deposits.

Keynesian economics is supportive of government 'fiat' money. Austrian economics is supportive of free-market determined money, normally a commodity based money such as gold.

Mises (1949, p. 183) said the main objective of "*praxeology [the study of human action] and economics is to substitute consistent correct ideologies for the contradictory tenets of popular eclecticism. There is no other means of preventing social disintegration and of safe-guarding the steady improvement of human conditions than those provided by reason. Men must try to think through all the problems involved up to the point beyond which a human mind cannot proceed further. They must never acquiesce in any solutions conveyed by older generations, they must always questions anew every theory and theorem. They must never relax in their endeavors to brush away fallacies and to find the best possible cognition. They must fight error by unmasking spurious doctrines and by expounding truth*".

In my view, Austrian economic theory provides a rational, coherent and logical explanation of the workings of society. I consider it provides valuable insights into the structural economic problems currently facing most of the world's economies. In particular, it clearly explains the role of 'sound money' and the significant risk of inflation (currency debasement) of the Keynesian experiment currently being enacted by most of the governments and central banks throughout the world.

As a thinking individual, I remain open to a better economic theory, but at this stage I am convinced there is much for us to learn from the Austrian economic school.

The Basics of Money

A barter, or direct exchange economy is a subsistence economy. It is not much different to pure self-sufficiency. In a barter economy there is not any need for money as goods and services are directly exchanged between the two parties. This, however, is not very efficient due to the problems of 'indivisibility' and 'lack of coincidence of wants'.

Money is the commonly used medium of exchange that allows indirect exchange of goods and services. Indirect exchange allows for specialisation, which allows for the societal benefits from improved productivity arising from the division of labour.

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A medium of exchange is a good which people acquire neither for consumption nor for use in production, but because they want to offer it in later acts of interpersonal exchange. The only function of money is a medium of exchange. The demand for money arises because people want to keep a store of it as a cash holding.

In a free society, the most marketable media of exchange will become the most demanded form of money. Historically many different goods have been used, including tobacco, sugar, salt, copper and grains. The free market will choose a durable media of exchange that has limited new supply. The two commodities that have traditionally emerged as money are gold and silver.

Money is different from any other good. An increase in the supply of any other good is beneficial to society. However, money is not 'used up' in an indirect exchange. An increase in the supply of money lowers its price (ie. dilutes its purchasing power), but doesn't give rise to any benefit to society. It follows therefore that any supply of money will be sufficient to allow money to function as a medium of exchange. Society benefits from an economy that is producing improved goods and services, but there is no benefit to society from an increase in the supply of money.

As both gold and silver are difficult to find, costly to mine and new supply is small in relation to existing stock, over history the free market has determined that they were suitable as a medium of exchange. Under a gold or silver standard, the supply of money was essentially 'inelastic'.

Monetary Calculation

Monetary calculation makes it possible to ascertain success and failure, profit and loss. It allows people to make savings and capital investment decisions. Mises (1949, p. 230) says it is '*the guiding star of action under the social system of division of labor*'.

In a free market, production of a good or service that is not wanted by consumers will be loss making and eventually fail. Entrepreneurs with efficient production of a good or service that is in strong demand from consumers will be profitable. Misallocated capital will be loss making and will be scraped. Capital that is well allocated will produce efficiencies in production, improving society's quality of living.

The monetary calculation is the main vehicle used for planning and acting – the allocation of scarce resources and determining the best means to satisfy consumer ends.

The State's Role in Money

State intervention is not required for the proper functioning of money. In a free market, money is acquired by producing and selling goods. Money flows to producers from consumers. To consume one must have previously gained money from production. As any amount of the chosen medium of exchange is sufficient for it to function as money, there is no need for any government involvement in the functioning of money.

Mises (1912, p. 69) argues that *'The Concept of money as a creature of Law and the State is clearly untenable. It is not justified by a single phenomenon of the market. To ascribe to the State the power of dictating the laws of exchange, is to ignore the fundamental principles of money-using society'*.

Unlike producers, governments don't obtain their revenue as payment for their services. Instead they use taxation to raise revenue. Taxation is, however, unpopular with the electorate, so the government has much to gain from controlling the issuance of money.

The State's role in money has progressively moved from the manufacture of gold and/or silver coins; to government controlled money backed by gold; to a 'fiat' based paper money system.

The gold backed money system provided a constraint on government deficit spending, as it was limited by the risk of external outflows of gold to its creditors. A gold standard puts a check on government based large-scale inflationary measures. In a fiat paper money system, there are only limited constraints on government deficit spending. It is therefore not surprising that governments prefer fiat money.

Paper money systems are a creation of the State. Fiat money allows the State to expand expenditure, often focused in the areas of welfare and warfare.

The main constraint on a fiat money system is the threat of hyperinflation and the collapse of the currency. This occurs when the public – including international creditors - realises that the fiat money is being so debased that they switch to another media of exchange.

Detlev Schlichter (2011, p. 14) concludes *'The history of paper money is a legacy of failure. Without exception paper money systems have, after a while, led to economic volatility, financial instability, and rising inflation. If a return to inelastic commodity money was not achieved in time, the currency collapsed, an event that was invariably accompanied by social unrest and economic hardship'*.

Mises (1949, p. 467-468) argues that governments shouldn't tamper with the market's choice of a medium of exchange as:

1. By committing itself to an inflationary or deflationary policy a government does not promote the public welfare, the commonweal,

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or the interests of the whole nation. It merely favors one or several groups of the population at the expense of other groups.

2. It is impossible to know in advance which group will be favored by a definite inflationary or deflationary measure and to what extent. These effects depend on the whole complex of the market data involved. They also depend largely on the speed of the inflationary or deflationary movements and may be completely reversed with the progress of these movements.
3. At any rate, an expansion results in misinvestment of capital and overconsumption. It leaves the nation as a whole poorer, not richer.
4. Continued inflation must finally end in the crack-up boom, the complete breakdown of the currency system.
5. Deflationary policy is costly for the treasury and unpopular with the masses. But inflationary policy is a boon for the treasury and very popular with the ignorant. Practically, the danger of deflation is but slight and the danger of inflation tremendous.

Demand for Money

The demand for money reflects how much people are willing to hold money in cash balances rather than spending it. When there is a high demand for money (people prefer to hold money rather than spend it) overall prices for goods & services will tend to fall. Conversely, when there is a low demand for money (people prefer to spend money rather than hold it) overall prices for goods & services will tend to rise.

The demand for money tends to move to equilibrium as lower prices for goods and service means there is less need to hold money, thereby increasing the prices of goods and services. Alternatively, when prices are higher there is an increased need to hold money to facilitate transactions, and this has the effect of reducing the prices of goods and services.

Demand for money should not be confused with the desire for increased wealth.

Governments Can Act as Producers of Money

It is perfectly possible to have a government deficit and for it not to add to the money supply. Where a deficit is funded by selling bonds to the public, then there is no net increase in the money supply and hence no inflation.

However, if the government deficit is part (or all) financed by money printing, this is inflationary as it increases the money supply. Similarly if the government deficit is financed by selling bonds to the banking sector, it is an inflationary increase in the money supply.

Rothbard (1995, p8) explains "*The new money, in the form of bank deposits, is then spent by the Treasury, and thereby enters permanently into the spending stream of the economy, raising prices and causing inflation. By a complex*

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process, the Federal Reserve enables the banks to create the new money by generating bank reserves of one-tenth that amount. Thus, if banks are to buy \$100 billion of new bonds to finance the deficit, the Fed buys approximately \$10 billion of old Treasury bonds. This purchase increases bank reserves by \$10 billion, allowing the banks to pyramid the creation of new bank deposits or money by ten times that amount. In short, the government and the banking system it controls in effect "print" new money to pay for the federal deficit."

Fractional-Reserve Banks Act as Producers of Money

Money is different from all other economic goods in that it is not consumed. With other goods the process of exchange eventually reaches the individual who wishes to consume the good. As such, a claim on those goods will sooner or later be realised. The owner of such goods will not promise to deliver more goods than he can fulfil. Money is different. It is quite possible for the claims on money (ie. bank balances) to pass between people without any claim being made to enforce the right to the money. For example, where bank notes are backed by gold, as long as the people retain confidence in the bank's ability to redeem the bank notes for gold, the bank notes could continue to circulate without any need to actually redeem the notes for gold. This opens up the potential for banks to issue obligations in excess of the amount of money it holds, as long as it takes sufficient precaution that it can satisfy those claims that are made for the redemption of bank notes into money. This also opens up the potential for banks to lend money for longer durations than the duration of the money deposits.

Mises argues that the business of banking falls into two distinct branches: 1) the negotiation of credit through the loan of other people's money; and 2) the granting of credit through the issue of fiduciary media (i.e. notes and bank balances that are not covered by money). It is in this second branch that banks act as money producers.

Banks act as money producers when they grant loans that are not funded from loans, but instead from deposits of money. When money is deposited into the bank the person is not surrendering any claims to that money. If, however, this money is then lent out there is an increase in the supply of money. Both the existing depositor and the recipient of the loan now have money or money substitutes in their accounts. The provision of credit through fiduciary media can only be made by banks as sufficient scale is required if depositors are to remain confident that they can access their money when required.

A bank that issues fiduciary media is unable to meet the demands of the holders of its notes and its depositors if they all decide to withdraw.

The issuance of fiduciary media is a lucrative source of revenue for the issuer. The bank receives interest income on the credit provided as fiduciary media. This credit finds its way back into additional bank deposits, much of which is then used to issue further credit. It is therefore in the interest of the banks to

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maximise the issue of fiduciary media to the extent that it doesn't negatively impact the confidence of its note holders and depositors. This is known as fractional-reserve banking. A bank retaining a minimum 10% of deposits as reserves (notes, coins, deposits with the central bank) can issue credit up to 10 times that of the initial deposit. Fractional-reserve banking significantly expands the money supply. The money supply becomes 'elastic'.

Fractional-reserve banks are limited neither by the independent demand for money nor the independent demand for loans. They can increase their lending by lowering interest rates. If money demand has not risen, the additional money will lead to higher prices (i.e. lower purchasing power of money).

Schlichter (2011, p. 137) concludes *'In a fractional-banking system, and that means today practically every banking system, every bank is potentially at risk of a bank run. A paper based money system and a fractional-reserve banking system are confidence based. Once the confidence goes, the system collapses'*.

Chris Leithner (2011, p. 137) argues that fractional reserve banking is a fraud. He says *'The fractional-reserve bank thereby increases the amount of credit it extends to borrowers above the amount of available savings. It does so by issuing money-substitutes (warehouse receipts) for which there exists no corresponding money in a bank's vault and lending them to borrowers as if they were genuine'*.

Fractional-reserve banking hurts the genuine saver (the person who has produced more than he has consumed) as it reduces the purchasing power of savings.

Central banks and governments play a significant role in encouraging fractional-reserve banking. The central bank in its role as 'lender of last resort' provides liquidity support to a bank in the scenario of a bank run. Interest rate policy of central banks can also be used to encourage loan demand. Government regulation of banks plays a role in maintaining confidence in the ability of banks to repay note holders and depositors, especially in cases when the government provides deposit protection insurance.

Leithner (2011, p. 143) argues *'Fractional reserve banking corrupts not just people's finance but also their virtues: because debtors gain at the expense of savers, borrowing becomes superficially attractive and living within one's means becomes pointless. In a fractional reserve mentality, debt becomes regarded as the route to riches and savings is for chumps'*.

The Principle of Sound Money

Sound money derived from the interpretation of historical experience, including the princely practice of debasing the coinage. Mises explained that the sound-money principle has two aspects: 1) It is affirmative in approving

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the market's choice of a commonly-used medium of exchange; and 2) it is negative in obstructing the government's propensity to meddle with the currency system. By the late 19th century the concept of sound money was well understood by the public and it became one of the essential postulates of a classic liberal policy.

Mises (1912, p. 414) says *'It is impossible to grasp the meaning of the idea of sound money if one does not realize that it was devised as an instrument for the protection of civil liberties against despotic inroads on the part of governments'*.

Sound money means an 'inelastic' commodity based monetary standard that is independent of the policies of government.

Distortions Arising From Increases in the Money Supply

No form of money is perfect. Even gold suffers from new supply – although it is quite difficult and costly to mine. Injections of money create distortions. Importantly, injections of money do not affect the prices of all commodities and services equally.

As new money is created it dilutes purchasing power of the holders of money (in a free market this is the people who have produced more than they have consumed) and reduces the real value of holders of nominal debts. In other words, it favours debtors over creditors. It can be seen as a form of property theft.

Importantly, the new money created does not affect all prices equally. Money injection is often uneven and non-transparent. Under a fiat money system, the government can simply print the money and use it for its transactions. The first recipients of the money are those to that the government pays money. This money is then paid to other producers and eventually distributed throughout the economy.

Inflow of additional money makes the prices of some commodities and services rise, while the prices of many other goods and services are not yet affected. There is not an instantaneous and proportional rise across all products and services.

The inflows of additional money create (real) winners and losers. Each step that the additional money flows through the economy will place upward pressure on prices. Generally those who are closest to the source of the new money will benefit the most, while those slowest to recognise the inflationary impacts of the new money will be the losers.

Rothbard (1992, p. 53) comments *'It should be clear that by printing new money to finance its deficits, the government and the early receivers of the new money benefit at the expense of those who receive the new money last or not at all: pensioners, fixed-income groups, or people who live in areas remote from pyramid construction. The expansion of the money supply has*

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caused inflation; but, more than that, the essence of inflation is the process by which a large and hidden tax is imposed on much of society for the benefit of government and the early receivers of the new money'.

As relative prices are distorted by injections of money, this must lead to misallocation of resources. Monetary calculation, a keystone of the economy, becomes distorted. Money injections redistribute control over economic means. As Schlichter (2011, p. 96) says *'This process will redistribute the ownership of economic means. It will lift GDP statistics temporarily, never lastingly. It will not lead to a better use of resources, to better human cooperation on markets. It will not lead to innovation, creativity, or more entrepreneurship. It is a trick that the money producer plays on the economy for short-term effect, and it cannot increase the efficiency and productivity of the economy'*. Injections of money do not lead to overinvestment they lead to malinvestment.

Rothbard (1963, p. 52) explains *"And inflation is, in effect a race – to see who can get to the new money earliest. The latecomers – the ones who are stuck with the loss – are often called the fixed interest groups. Ministers, teachers, people on salaries, lag notoriously behind other groups in acquiring the new money, Particular sufferers will be those depending on fixed interest contracts – contracts made in the days before the inflationary rise in prices. Life insurance beneficiaries and annuitants, retired persons living off pensions, landlords with long term leases, bondholders and other creditors, those holding cash, all will bear the brunt of inflation"*.

Inflation favours debtors over creditors. This distorts savings and capital investment decisions.

The Definition of Inflation

Mises (1912, p. 240) defines inflation as *"an increase in the quantity of money (in the broader sense of the term, so as to include fiduciary media as well), that is not offset by a corresponding increase in the need for money (again in the broad sense of the term), so that a fall in the objective exchange-value of money must occur"*. He adds *"The theoretical value of our definition is not in the least reduced by the fact that we are not able to measure the fluctuations in the objective exchange-value of money, or even by the fact that we are not able to discern them at all except when they are large"*.

In the present day, inflation is commonly understood to be changes in the cost of living of a basket of goods & services as reflected in the consumer price index (CPI). The CPI is a measure of inflation, but it is not itself inflation. From an Austrian perspective, changes in the purchasing power of money have two components: 1) changes in the demand for money relative to changes in the production of goods & services; and 2) changes in the supply of money. The first component of inflation or deflation is not harmful as it reflects individual actions in a free market economy. The second component is harmful as it distorts human action.

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It is also important to understand that the component of inflation arising from increases in the money supply will not be solely concentrated on changing the prices of goods & services. Changes in the money supply also affects the prices of assets (property, equities, bonds etc). The impact of increased money supply will sometimes have a greater impact on the prices of good & services than on asset prices; and sometimes it will have a greater impact on asset prices than on the prices of goods & services. In addition, the impact of increased money supply will affect various good, services and assets differently. The consequence of distorted prices is that the monetary calculation - the main vehicle used for planning and acting – becomes erroneous, meaning that scarce resources are poorly allocated and thereby society suffers in terms of fewer satisfaction of consumer ends.

Schlichter (2011, p. 231) argues that *"The great money expansion of the past 30 years was...channelled via the financial industry into specific sectors and benefited disproportionately the owners of equity claims, debt claims, and real estate, and those who work in related areas, in particular the financial industry."*

The Effects of Inflationary Policies

Government policies that are funded by issuing 'elastic' paper money are often popular with the electorate. This is due to a misunderstanding by the public as to the consequences of inflationary policies. People want the prices of the goods and services that they are selling to rise, but not for a rise in the prices of goods and services that they want to buy. Instead it is the savers, particularly the older generation on fixed (nominal) incomes that are the real losers from inflationary policies.

Mises (1912, p. 418) explains *'In the early stages of inflation only a few people discern what is going on, manage their business affairs in accordance with this insight, and deliberately aim at reaping inflation gains. The overwhelming majority are too dull to grasp a correct interpretation of the situation'*.

The critical stage begins when consumers decide that they will buy goods and services today, as they will be much more expensive later. The last stage of inflation begins when the consumer decides to buy any good as it wiser to own a good than the fiat paper money.

Mises (1912, p. 421) argues that *'The expansionist doctrine does not realise that interest, ie. the discount of future goods against present goods, is an originary category of human valuation, actual in any kind of human action and independent of any social institutions'*. Instead the expansionists believe interest is an impediment to the expansion of production. They argue that expanding the magnitude of the supply of money reduces how much borrowers need to pay the 'selfish concerns of money-lenders'. The argument is however untenable. Mises (1912, p. 422-423) states *'The inevitable eventual failure of any attempt at credit expansion is not caused by the international intertwinement of the lending business. It is the outcome of the fact that it is*

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impossible to substitute fiat money and a bank's circulation credit for non-existing capital goods. Credit expansion initially can produce a boom. But such a boom is bound to end in a slump, in a depression. What brings about the recurrence of periods of economic crisis is precisely the reiterated attempts of governments and banks supervised by them to expand credit in order to make business good by cheap interest rates'.

A Brief History of Commodity Money in Australia

Prior to 1910, the dominant form of currency in Australia was State issued currency and bearer redeemable promissory notes issued by private banks, denominated in pounds sterling. From the second half of the nineteenth century to the early years of the twentieth century the exchange rate rarely departed from parity with sterling. With the link to the pound sterling, in effect, Australia adhered to the gold standard. The introduction of the Bank Notes Tax Act 1910 imposed a 10% tax on all bank notes issued or reissued, effectively bring an end to private bank note issuance. The Act also gave Commonwealth Treasury the control over the issuance of Australian currency notes.

During the First World War, Australia followed the British Empire in suspending the conversion of the pound into gold, with an embargo placed on the export of gold from Australia.

The first legislative attempt to create a central bank in Australia took place in 1924 when the government amended the Commonwealth Bank Act with the express purpose of establishing a central bank. According to Cornish (2008) this decision was the result of a series of historical events that culminated in the formulation of a monetary policy aimed at returning Australia to the gold standard.

In 1925, Australia and Britain returned to a form of the gold standard. However, this was not to last long. In 1929, Australia's exports fell sharply. Legislation was passed to give the Commonwealth Bank the power to requisition gold supplies in Australia. By 1931, Australia devalued its currency by 25% against the pound sterling, effectively dropping the gold standard. Later that same year, Britain itself abandoned the gold standard.

In 1944, under the Bretton Woods system, Britain agreed that it would define the value of pound sterling in US dollars, which in turn was tied to gold. The US agreed to link the dollar to gold at the rate of US\$35 per ounce of gold. During this time, the Australian currency remained linked to the pound sterling, so there was an indirect link between the Australian currency and gold. The links, however, with the gold under Bretton Wood were tenuous, as countries were able to devalue against the pegged rate by more than 10% if given approval from the IMF.

In the 1967, there was a devaluation of the pound sterling which the Bank of England failed to defend from its gold and dollar reserves. The Australian

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currency didn't follow the devaluation of the pound sterling and thereby became linked to the US dollar.

In 1970 the US gold coverage deteriorated from 55% to 22% as certain countries, including France, redeemed their dollars for gold. In the first half of 1971, \$22 billion of assets fled the United States. [source: Warin, 2005]

The USA severed its last links with gold in August 1971 when President Nixon announced that the United States government would no longer abide by the 1944 Bretton Woods agreement to deliver gold at US\$35 per ounce to any government or central bank.

From 1971 onwards, every major country, including Australia, has been on a state-issued fiat money system.

Unsound Money

There are many historical examples of devastating consequences of paper money inflations.

In America, the Continental currency issued by American colonies was close to worthless by 1781, only six years after it was issued to fund the Revolutionary War, giving rise to the phrase "not worth a continental". In 1814, many US banks were allowed to suspend payment in specie. After resuming payment in 1817, it was again suspended by most banks in the South and West in 1819. Specie payment was suspended in 1837, and not fully resumed until 1842. Gold payments were again suspended on 30 December 1861. In February 1862, the government started issuing US notes known as 'greenbacks'. The 'greenbacks' quickly lost purchasing power. To reverse the inflation, the Resumption Act 1875 was enacted so that by 1879 the USA was back onto the gold standard. However, in 1933, President Franklin D. Roosevelt made the break with the gold standard. In the USA, no person was permitted to hold gold or gold certificates. Roosevelt placed an embargo on all international transactions in gold, except under license issued by the secretary of the Treasury. The 'gold clause' in government bonds and private obligations was declared void.

In Britain, the Bank of England has on several occasions in the past defaulted on its promise to repay notes in physical gold. Britain remained off the gold standard between 1797 and 1821.

In France, paper money was issued in 1716 under a scheme developed by Scottish economist John Law. Law believed that money creation would stimulate the economy. However, the system soon collapsed following the 21 May 1720 decree announcing the reduction in the face value of banknotes. The ensuing run on the bank destroyed confidence in the system. During the French revolution in 1790 France issued the Assignat, which was originally backed by confiscated church lands. They were however issued in excess,

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and by 1792 they had lost most of their value. In 1796 they were replaced by Mandats Territoriaux, which one year later were also close to worthless.

A most chilling lesson on the consequences of unsound money can be found in the book *'When Money Dies, The Nightmare of Deficit Spending, Devaluation and Hyperinflation in Weimar Germany'*, Adam Ferguson, 1975. The book describes the devastation inflicted upon the citizens of the Weimar Republic from hyperinflation in the years leading up to 1923.

Ferguson (1975, p. 74) describes how in Weimar Germany the early stages of inflation was justified by the leading industrialists, such as Hugo Stinnes "as a means of guaranteeing full employment, not as something desirable but simply as the only course open to a benevolent government. It was, he maintained, the only way whereby the life of the people could be sustained". The final consequences of inflation were, however, a disaster. People lost their life savings and there was severe social unrest as people starved when the economy collapsed.

In more recent times, hyperinflation was experienced in Argentina 1989-90; Brazil 1989-90; Poland 1989-90; Yugoslavia 1989-1994; Russia in 1992; Ukraine 1992-1994; and Zimbabwe 2004-2009.

Mises (1949, p. 419) argued "It would be futile to retort that these catastrophes were bought about by the improper use which their governments made of the power that credit money and fiat money placed in their hands and that wiser governments would have adopted sounder policies. As money can never be neutral and stable in purchasing power, a government's plans concerning and determining the quantity of money can never be impartial and fair to all member of the society. Whatever a government does in the pursuit of aims to influence the height of purchasing power depends necessarily upon the rulers' personal value judgements. It always furthers the interests of some groups of people at the expense of other groups. It never serves what is called the commonweal or the public welfare".

Inflation hurts the productive person, the saver. It creates a disincentive to be productive. In effect it transfers wealth from creditors to debtors. It rewards the 'elite', those who are close to the source of the increased money supply – the government and the banking sector - who first use this 'new' money to buy goods & services and assets. Inflation leads to malinvestment which means that scarce resources are poorly allocated and as a consequence society is worse off.

The Gold Standard

Mises (1949, p. 471) argues that "The gold standard makes the determination of money's purchasing power independent of the changing ambitions and doctrines of political parties and pressure groups. This is not a defect of the gold standard; it is its main excellence...Its general acceptance requires the

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acknowledgment of the truth that one cannot make all people richer by printing money”.

Mises (194, p. 469-470) puts forward the case of the gold standard as *“the world standard of the age of capitalism, increasing welfare, liberty, and democracy, both political and economic. In the eye of free traders its main eminence was precisely the fact that it was an international standard as required by international trade and the transactions of international money and capital market. It was the medium of exchange by means of which Western industrialism and Western capital had borne Western civilization into the remotest parts of the earth’s surface, everywhere destroying the fetters of old-age prejudices and superstitions, sowing the seeds of new life and new well-being, freeing minds and souls, and creating riches unheard of before. It accompanied the triumphal unprecedented progress of Western liberalism ready to unite all nations into a community of free nations peacefully cooperating with one another”.*

History suggests, however, that most governments dislike the gold standard. It reduces their ability to protect domestic industries from global competition. It makes it difficult for them to manipulate wages and prices. It restrains their ability to run budget deficits. It retards their ability to manipulate interest rates to stimulate credit expansion. Mises (1949, p. 471-472) concludes *“The abhorrence of the gold standard is inspired by the superstition that omnipotent governments can create wealth out of little scraps of paper”.*

History would suggest that a total collapse of the paper money system is a more likely outcome than for governments themselves to decide to return the monetary system to the free-market, with commodity money such as gold.

Measures of Money Supply Growth

Since 1971, the global paper money system has suffered a significant decline in the purchasing power of money. This is best represented by the price of gold increasing from US\$35 per ounce to its current level of about US\$1,400 per ounce – a compound growth rate of 9.4% per annum.

Frank Shostak (2000, p. 74) defines money supply as: Cash plus demand deposits with commercial banks and thrift institutions plus government deposits with banks and the central bank. He says *“This definition shows clearly that any expansion in the money supply results solely from central bank injections of cash and commercial bank’s fractional reserve banking”.*

According to RBA statistics in December 1971, Australia had a currency base of A\$1.48b. At December 2012, this had grown to A\$53.8b, representing a compound annual growth rate of 9.2%. Over this same time period, M3, which includes term and other deposits with banks, went from A\$17.07b to A\$1,517.2b, a compound annual growth rate of 11.6%. Even over the past five years, during the ‘GFC’, Australian M3 has increased from A\$984.5b to A\$1517.2b – a compound annual growth rate of 9.0%.

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The True Money Supply (TMS) was formulated by Murray Rothbard and represents the amount of money in the economy that is available for immediate use in exchange. The TMS consists of the following: Currency Component of M1, Total Checkable Deposits, Savings Deposits, Government Demand Deposits and Note Balances, Demand Deposits Due to Foreign Commercial Banks, and Demand Deposits Due to Foreign Official Institutions.

The following graph shows the growth in USA's True Money Supply (TMS) from 1959 to 2012.

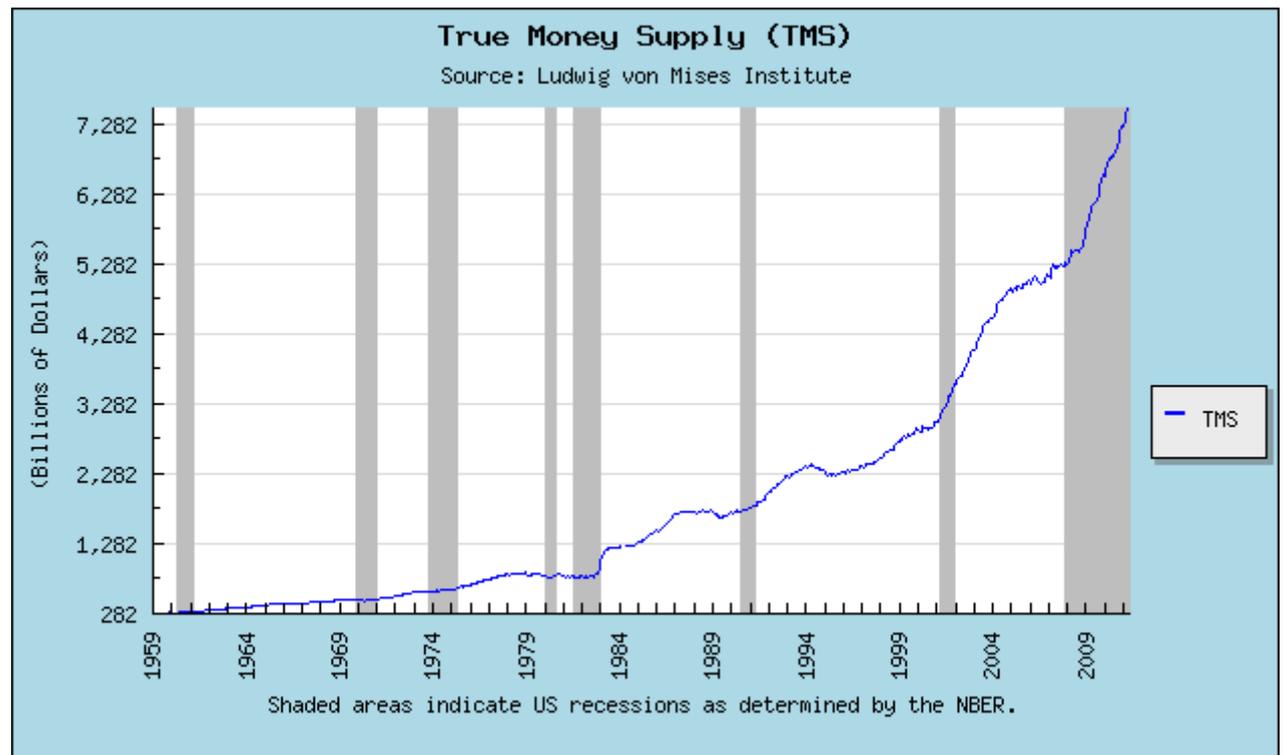


Figure 1: True Money Supply (TMS), Ludwig von Mises Institute

Consumer Price Index Risk

It is important to understand that inflation – defined as increases in the money supply - is reflected both in changes in the price of goods & services, and as changes in asset prices. It is not possible to determine exactly where the increases in the money supply will be reflected. In some situations, the increase in the money supply will largely be reflected in the prices for goods & services – creating large increases in the reported CPI - and in other situations, the increase in money supply will largely be reflected in asset prices – creating a 'boom' in property and/or equity markets. Increases in the money supply may also be reflected in increased nominal company profits. As these distortions arising from the increased money supply are not able to be accurately quantified, the risk environment is significantly raised.

The significant increase in money supply that Australia has experienced since 1971 has been only partly reflected in consumer price index inflation. In the 41

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year period to December 2012, M3 grew 11.6% pa and the CPI increased by 5.7% pa. Over the past 20 years, money supply has increased by 9.6% pa and the CPI has increased by only 2.7% pa. While, the government calculated CPI may well understate the overall increases in goods & services prices, it does seem that in the past 20 years a significant portion of the increase in money supply has found its way into asset prices rather than consumer prices.

While to date a significant component of the increase in Australia's money supply has found its way into asset prices, this may reverse in the future. This is likely to arise if people reduce their desire to hold nominal assets. Individuals may come to the realisation that nominal assets will suffer a significant decline in (real) value due to the excessive growth in money supply. In this scenario, individuals would exchange nominal assets for goods & services, thereby pushing up the price of consumer goods & services.

Wage Rate Risk

According to Mises (1949, p. 589-590) *"Labor is a scarce factor of production. As such it is sold and bought on the market. The price paid for labor is included in the price allowed for the product or the services if the performer of the work is the seller of the product or the services...The height of wage rates is determined on the market in the same way in which the prices of commodities are determined...Connexity exists not only between different types of labor and the prices paid for them but no less between labor and the material factors of production."*

In an essay published in *Christian Economics*, March 4, 1958, Mises says that *"The buyers do not pay for the toil and trouble the worker took nor for the length of time he spent in working. They pay for the products. The better the tools are which the worker uses in his job, the more he can perform in an hour, the higher is, consequently, his remuneration. What makes wages rise and renders the material conditions of the wage earners more satisfactory is improvement in the technological equipment. American wages are higher than wages in other countries because the capital invested per head of the worker is greater and the plants are thereby in the position to use the most efficient tools and machines. What is called the American way of life is the result of the fact that the United States has put fewer obstacles in the way of saving and capital accumulation than other nations. The economic backwardness of such countries as India consists precisely in the fact that their policies hinder both the accumulation of domestic capital and the investment of foreign capital. As the capital required is lacking, the Indian enterprises are prevented from employing sufficient quantities of modern equipment, are therefore producing much less per man-hour and can only afford to pay wage rates which, compared with American wage rates, appear as shockingly low. There is only one way that leads to an improvement of the standard of living for the wage-earning masses, viz., the increase in the amount of capital invested. All other methods, however*

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popular they may be, are not only futile, but are actually detrimental to the well-being of those they allegedly want to benefit."

The table below shows an international comparison of labour costs (hourly costs, including overheads) for the construction industry sourced from a report published by Turner & Townsend. The figures are in USD based on average exchange rates for calendar 2011.

	Group 1 tradesman – eg plumber, electrician	Group 2 tradesman – eg carpenter, bricklayer	Group 3 tradesman – eg carpet layer, tiler, plasterer	General labourer	Site foreman
Australia	70	59	57	40	75
Canada	61	56	51	46	76
China	3	3	3	2	6
Germany	49	50	50	46	56
India	1.2	1.1	0.8	0.4	1.7
Ireland	40	40	40	33	40
Japan	30	27	27	21	30
Malaysia	7	5	7	3	18
Russia	17	17	17	14	20
Singapore	20	16	17	12	24
Sth Africa	7	7	6	3	28
Sth Korea	95	95	94	67	91
UAE	8	8	8	4	20
UK	48	48	48	29	74
US	75	65	57	53	77
Vietnam	11	9	7	6	10

Figure 2: Turner & Townsend – International Cost Survey 2012

In this example, Australian wage rates are relatively high. In an unhampered market this would suggest that the marginal productivity of Australian construction workers is relatively high due to a high level of capital investment in skill development and equipment. It could, however, also be reflective of excessive consumption of construction services driven by malinvestment due to Australia's high money supply growth over the past 20-40 years. If this is the case, Australian society is eventually worse off due to malinvestment and the risk is for wages to suffer, in real terms, as these malinvestments are realised and worked through.

Mises (1949, p. 597) argues "Wage rate fluctuations are the device by means of which the sovereignty of the consumers manifest itself on the labor market. They are the measures adopted for the allocation of labor to the various branches of production. They penalize disobedience by cutting wage rates in the comparatively overmanned branches and recompense obedience by

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raising wage rates in comparatively undermanned branches". Mises (1949, p. 605) added "On the unhampered labor market wage rates always tend towards the point at which they coincide with marginal productivity of labor.....Wage rates are ultimately determined by the value which the wage earner's fellow citizens attach to his services and achievements. Labor is appraised like a commodity not because the entrepreneurs and capitalists are hardhearted and callous, but because they are unconditionally subject to the supremacy of the pitiless consumers".

As explained previously, credit expansion does not add anything to a nation's wealth of capital goods. It merely creates the illusion of an increase in the amount of funds available for an expansion of production. Projects that otherwise would not have previously proceeded now become feasible. These projects create artificial demand for labor and for raw materials and makes wage rates and commodity prices rise. Rising prices from credit expansion helps push up nominal wages, but depresses real wages.

Asset Price Risk

Austrian economic theory says the level of interest rates provides an important market signal between the value that individuals place on current consumption compared to the value they place on future consumption. The rate of ordinary interest is determined by the discount of future goods as against present goods.

If central banks set interest rates at a lower level than this ordinary interest it will encourage credit creation. Mises (1949, p. 437) concludes that *"Lowering the rate of interest is tantamount to increasing the quantity of what is mistakenly considered as the fair and normal requirements of business"*.

Mises (1949, p. 429) argues *"First: Inflationary or expansionist policy must result in overconsumption on the one hand and malinvestment on the other. It thus squanders capital and impairs the future state of want-satisfaction. Second: The inflationary process does not remove the necessity of adjusting production and reallocating resources. It merely postpones it and thereby makes it more troublesome. Third: Inflation cannot be employed as a permanent policy because it must, when continued, finally result in a breakdown of the monetary system"*.

Inflation generates forces that tend toward capital consumption over capital accumulation. As inflation understates the cost of depreciation, it falsifies economic calculation and accounting. Mises (1949, p. 546-547) argues *"It produces the phenomenon of imaginary or apparent profits"*. He added *"If the rise in the prices of stocks and real estate is considered as a gain, the illusion is no less manifest. What makes people believe that inflation results in general prosperity is precisely such illusionary gains. They feel lucky and become openhanded in spending and enjoying life. They embellish their homes, they build new mansions and patronize the entertainment business. In spending apparent gains, the fanciful result of false reckoning, they are*

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consuming capital. It does not matter who these wage earners whose demand for higher pay is satisfied by the easygoing employers who think that they are getting richer from day to day. They may be people supported by taxes which usually absorb a great part of the apparent gains".

In general, central banks around the world have been running a low interest rate policy setting. This has supported stronger growth in the money supply than would otherwise be the case. Malinvestment of capital is a likely consequence of this policy setting. In such an environment there is a significant risk that capital will not produce the real returns that were expected from it. The existence of illusory profits and distorted interest rates makes accurate asset valuations nearly impossible.

The ABS *Household Wealth and Wealth Distribution 2009-10* survey details the assessed 'wealth' of Australian households. The mean net worth per household is estimated in the survey to be A\$719,561. This seems to be very high given that it is 8.2 times the mean gross household income of about A\$88,000 per annum. It is even more amazing given that for 25% of people their main source of income is government pensions and allowances. The ABS report says "*There is a strong correlation between net worth and home ownership, and for many households, their dwelling is their main asset*". The value of property assets per household was A\$501,300. This is compared to financial assets, including superannuation, of A\$233,500 per household. The survey valued the residential property assets held by households at A\$3.907 trillion. This was up by A\$1.538 trillion on the 2003-04 assessed value of A\$2.369 trillion. This is an increase of around A\$30,000 per annum per household over the six year period. The report certainly shows that Australians have made a significant investment in the housing sector. The risk is that, as Mises argued, much of this growth in household wealth is illusory and the Australian household sector is consuming capital by spending the apparent gains.

In an inflationary environment there is a heightened risk for nominal assets if more people become aware of the loss of purchasing power of money and they decide that they prefer exposure to 'real' assets over nominal assets.

Currency Debasement Risk

With regard to the consequences of unbridled credit expansion, Mises (1949, p. 570) concludes that "*The wavelike movement affecting the economic system, the recurrence of periods of boom which are followed by periods of depression, is the unavoidable outcome of the attempts, repeated again and again, to lower the gross market of interest by means of credit expansion. There is no means of avoiding the final collapse of a boom bought about by credit expansion. The alternative is only whether the crisis should come sooner as the result of a voluntary abandonment of further credit expansion, or later as a final and total catastrophe of the currency system involved*".

It seems pretty clear that governments and central banks around the globe have no intention to voluntarily abandon further credit expansion. To

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encourage credit expansion, in most countries central banks have set interest policy settings at close to zero; in many countries central banks are printing money through 'quantitative easing'; and many governments are running large fiscal deficits partly funded by the central banks and the banking sector.

According to Austrian economic theory we are facing a final and total catastrophe of the current government-issued fiat paper money system.

Schlichter (2011, p. 225-226) says *"Those that believe that the crisis has been allowed to unfold and is soon behind us, and that therefore Mises' warning about ultimate currency collapse...does not apply to the present situation, make a fundamental error. Current policies have postponed the crisis and the necessary process of liquidation of misallocations of capital. They have not, and logically cannot, make them go away"*.

Schlichter (2001, p. 231-232) argues *"For some time inflationary policy will appear like 'pushing on a string,' but there will be a point at which it will gain traction. The decline in money's purchasing power will accelerate when the public realizes to what extent income streams, asset prices, and the solvency of the banks and state institutions rest on the ongoing printing of money. The rush out of paper money will then accelerate dramatically"*.

A final collapse of the paper money system involves the public losing faith in the value of fiat money. The demand for paper money collapses. Those holding nominal assets, such as government bonds suffer large losses in real terms. Real assets are also at increased risk, including the risk of expropriation by government – either directly or through taxation.

In the future, Schlichter (2011, p. 235) expects *"We should see a persistent trend towards investment in more tangible assets, in assets the supply of which cannot be expanded easily, such as hard and soft commodities, certain forms of real estate, forestry, and arable land. But of particular interest will undoubtedly be the precious metals, gold and silver, which are the most essential self-defence assets in any paper money crisis"*.

Implications for Actuarial Assumptions

Asset market returns and wage rate forecasts are often important assumptions in actuarial modelling. They are particularly important for asset / liability analysis. The application of Austrian economic theory can help provide actuaries with insights into the potential outcomes and risks of these variables.

Austrian economic theory helps us to understand that the concept of a government bond as a 'risk free' investment actually refers to the state's future taxing capacity and/or its ability to repay through monetising its debt through an increase in the money supply. As inflation is typically a more attractive way for a state to pay for its liabilities, domestic holders of

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government debt face the risk of declines in the real return and international holders face exposure to foreign exchange risk.

Austrian economic theory helps us to understand that changes in the consumer price index are a symptom of inflation, but that it is not inflation. Instead the focus of actuaries should be on how changes in the money supply affect the key assumptions, including those of asset market returns and wage rate forecasts.

Austrian economic theory helps us to understand the concept of 'sound money' and helps us identify that the current government fiat paper based money system is 'unsound'. Austrian economic theory shows us that the 'unsound money' system is facing a final and total catastrophe. In particular, this has significant implications for the actuarial assumptions to be used in the modelling of organisations with nominal assets and real liabilities.

Conclusion

In my view, Austrian economic theory provides a cogent argument that we currently face a significant risk of currency debasement. In fact, Mises concluded that there is no means of avoiding the final collapse. It is just a matter of when it happens. Delaying the inevitable through further credit expansion only creates a bigger eventual collapse.

It is the saver – the person who has produced more than he has consumed – who will be the big loser from a collapse in the paper currency.

A currency debasement poses significant risks for individuals and organisations. Be prepared!

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